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Sociocontextual Factors and Maternal Caregiving in Mexican American Families with a Toddler

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This study investigated the influence of sociocontextual factors on maternal caregiving behaviors in 27 Mexican American families with both a mother and father and a toddler. Observations of family and dyadic tasks or interactional scenarios in laboratory settings were used to assess the coparenting relationship and the mothers’ sensitivity, intrusiveness, and disengagement with their children. Mothers also completed demographic and acculturation questionnaires. Results showed that the mothers’ generation level significantly predicted sensitivity. Findings further revealed that coparental competition was significant in predicting intrusiveness in the mothers’ caregiving. Results show how culture, family, and characteristics of mothers collaborate to predict the mothers’ caregiving behaviors.

Keywords: coparenting, caregiving, sensitivity, intrusiveness, Mexican American, acculturation

Introduction

Sociocontextual factors can either support or compete with a mother’s ability to focus on providing adequate care for her child or influence her desire to be a caregiver (George & Solomon, 2008). The caregiving role may be compelling, but mothers have other needs and goals besides protecting their young. For example, caregivers may also be a spouse or in a relationship with the child’s other parent. Mothers must find a balance between the need to protect and nurture their children while fulfilling the needs of their other goals (Bowlby, 1969/1982). A caregiver’s ability to find a balance between these competing systems is influenced by characteristics of the mother and sociocontextual factors (George & Solomon, 2008). According to George and Solomon, some of these factors include the mother’s relationship with the child’s father and cultural expectations. In this study, we explored the sociocontextual factors of acculturation and coparenting as an influence on the caregiving behaviors of Mexican American mothers with their toddlers.

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Culture influences how mothers raise their children and which caregiving behaviors are emphasized (Bornstein & Cote, 2001). Mexican Americans are exposed to and influenced by the cultures of Mexico and the United States and integrate different socialization and childrearing goals in their parenting (Cuéllar, Siles, & Bracamontes, 2004). Mexican American culture is described as sociocentric, collectivistic, or interdependent-oriented, meaning that connectedness between individuals is fundamental (Harwood, Leyendecker, Carlson, Asencio, & Miller, 2002). On the other hand, Harwood et al. (2002) described American culture as individualistic or independence-oriented, meaning that individuals are seen as independent or autonomous. The emphasis on interdependence or independence influences parenting beliefs and childrearing practices that organize mothers’ interactions with their children and their caregiving behaviors (Caldera, Velez-Gomez, & Lindsey, 2015).

A distinctly sociocentric value that is unique to Hispanic cultures is the concept of *familismo* that emphasizes the importance of family solidarity, obligation, and parental authority (Cauce & Domenech-Rodríguez, 2002). *Familismo* has been defined as a belief system referring to feelings of loyalty, reciprocity, and solidarity towards family members (Cortés, 1995). This cultural concept represents strong feelings of interconnectedness and is useful in understanding the dedication to children, parents, family unity, and family honor among Mexican Americans (Peluso, Miranda, Firpo-Jimenez, & Pham, 2010). Caldera et al. (2015) contend that family connection, interdependence, and closeness are integral parts of Mexican American culture that influence the beliefs and actions of parents by their significance.

In a study of socialization goals of mothers from Mexican, Dominican, and African-American backgrounds, Ng, Tamis-LeMonda, Godfrey, Hunter, and Yoshikawa (2012) found that mothers of all three collectivistic ethnic groups increasingly endorsed connectedness as a desirable quality in their children at one month, 14 months, and two years of age. In another study, some immigrant Mexican mothers, when interviewed about values for their children, identified being independent as a least desirable characteristic, while others did not even understand the meaning of independence in relation to young children (Arcia & Johnson, 1998). These findings show the social and cultural context of childrearing in Mexican families places less emphasis on independence and separation during childhood (Tapia-Uribe, Levine, & Levine, 1994).

**Acculturation**

Acculturation refers to the extent to which cultural beliefs, behaviors, and values have changed due to interactions with the dominant culture (Barnett, Mortensen, Gonzalez, & Gonzalez, 2016). This cultural construct may influence a mother’s childrearing practices (Klinekebiel, Harris, & Borrego, 2015) and her ties to traditional Mexican values (Ayón, Williams, Marsiglia, Ayers, & Kiehne, 2015). The process of acculturation may weaken sociocentric values of interdependence and *familismo* over generations, offering different childrearing ideas and options to later generations of mothers (Buriel, 1993). Consequently, a mother’s generation level and degree of
acculturation can regulate her thinking and behavior toward providing care and protection for her child (George & Solomon, 2008).

Level of acculturation is related to parenting behaviors for Latina mothers (Domenech Rodríguez, Davis, Rodríguez, & Bates, 2006). Calzada, Huang, Anicama, Fernandez, and Brotman (2012) found the acculturative status of Mexican and Dominican mothers to be associated with their parenting practices through socialization messages of Latino values. Perez Rivera and Dunsmore (2011) found mothers with higher Latino orientation were more apt to hold the belief that it was their responsibility to guide children’s emotions. The authors suggested these findings were related to interdependence as these mothers socialize their children to maintain family harmony by actively guiding their emotions, thus teaching the next generation about collectivistic cultural practices.

Delgado-Gaitan (1994) found first generation parents responded to United States norms by acculturating and teaching their children how to adapt to independence-oriented values. The home culture of these Mexican American families became more congruent with their children’s school and society but maintained an underlying emphasis on collectivism. First and second generation Mexican American parents identified independence and self-confidence as important developmental milestones, yet also indicated their role in their children’s development is to be loving, caring, and understanding (Delgado & Ford, 1998). This sensitivity demonstrates a strong sense of family closeness that is more characteristic of Mexican-oriented values.

On the other hand, Ceballo and Hurd (2008) found that parental self-efficacy decreased with increases in acculturation among the Latina mothers in their study. The authors suggested this decline in mothers’ parenting confidence with increased acculturation may reflect the inherent tension in balancing competing sets of cultural norms when making parenting decisions.

Coparenting

The relationship a mother has with her baby’s father or other coparent can especially influence her ability or desire to provide care (Bowlby, 1982; George & Solomon, 2008). Coparenting generally refers to the practice of parents sharing responsibility for caregiving and childrearing (McHale & Lindahl, 2011). Parents can function as partners in an alliance or as adversaries in their role as caregivers (Gable, Crnic, & Belsky, 1994). Accordingly, the quality of coparenting relationships can vary in the extent to which parents support or undermine each other’s caregiving efforts (Lindsey, Caldera, & Colwell, 2005). A well-functioning coparenting system is characterized by parents’ mutual support of each other’s childrearing behaviors (Caldera & Lindsey, 2006). Coparenting functions best when parents work together to adequately protect and nurture their child such that the most efficacious coparents have shared understanding, communication, and coordination between each other about their child (McHale & Irace, 2011). McHale and Irace further define effective coparenting as requiring the trust and support of one another’s efforts and the ability to successfully resolve dissonance over childrearing decisions.
Few studies have focused on the coparenting relationship in Mexican American families (Lindsey & Caldera, 2015). A notable exception is a qualitative study conducted by Caldera, Fitzpatrick, and Wampler (2002) that examined coparenting in Mexican American families through focus group discussions with mothers and fathers separately. The results revealed that Mexican American coparents talked about the importance of discussing parenting issues and presenting a united front for their children. Parents were supportive of each other in providing relief when things were stressful or the other parent was unavailable; in reinforcing what the other parent had said, decided, or wished to happen; and by not interfering when the other parent was disciplining their child(ren). The coparents mutually agreed to divide task responsibility between each other and would compensate for each other’s shortcomings in a life skill or by taking charge of a situation when the other parent was not successful. Coparents viewed each other as equally capable or equally responsible for parenting tasks and conveyed a sense of sharing in parenting duties. Overall, Caldera et al. (2002) found a collaborative approach to coparenting in which both fathers and mothers were highly involved in parenting activities.

This literature review suggests that family harmony and balanced levels of parental engagement with the baby should allow mothers to provide their child with comfort and protection when needed. Mothers with a cooperative coparenting relationship were found to be more responsive to their infants (Caldera & Lindsey, 2006). However, the daily experience of disparaging coparents that undermine each other’s relationship with their child and compete for the child’s love and affection has detrimental effects on parent-child relationships (McHale & Irace, 2011). A discordant coparenting relationship may be a source of stress or preoccupation for mothers, leaving them less available for sensitive interactions with their children or otherwise impairing their caregiving behaviors (Cabrera, Shannon, & Jolley-Mitchell, 2013; Caldera & Lindsey, 2006; Margolin, Gordis, & John, 2001). Mortensen and Barnett (2015) suggested that in Mexican origin families, this parenting stress may influence the quality of care a parent can provide during parent-child interactions.

**Purpose of the Study**

The purpose of the current study is to investigate how sociocontextual factors collaborate to predict maternal caregiving behaviors in Mexican American families with a toddler. This study addresses three key questions:

1) How is acculturation and generation level related to the coparenting relationship among Mexican American mothers and fathers?

2) How is Mexican orientation and generation level associated with maternal caregiving behaviors?

3) How does coparenting serve as a predictor of maternal sensitivity and insensitive caregiving behaviors of Mexican American mothers with a toddler?
Methods

Participants

Participants were 27 Mexican American families in which each family included a mother, a father, and a 12- to 18-month-old child. Families were recruited through local child care centers and Catholic churches, newspaper archives of birth announcements, recommendations from other participants and community members, and an electronic list-serve distributed to students, faculty, and staff at a large university located in West Texas. All of the toddlers (16 boys and 11 girls) were born in the United States. The median age of the toddlers was 14 months. Data from two fathers found to be non-Hispanic White were excluded from the study. Demographic characteristics of the parents are shown in Table 1. The mothers’ ages ranged from 19 to 38 years (M = 28.30; SD = 5.33) and fathers’ ages ranged from 21 to 43 years (M = 29.84; SD = 6.77).

Table 1. Demographic Characteristics of Mothers (N = 27) and Fathers (N = 25)

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<th>Characteristic</th>
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<td>7</td>
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<tr>
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<td>18.5</td>
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<td>&gt; $100,000</td>
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The generational breakdown of the participating parents was as follows: 7% of the mothers and 8% of the fathers were first generation Mexican American, 30% of the mothers and 12% of the fathers were second generation, 7% of the mothers and 4% of the fathers were third generation, 26% of the mothers and 32% of the fathers were fourth generation, and 30% of the mothers and 44% of the fathers were fifth generation.

According to the U.S. Census Bureau, income levels reported by participating families indicated that 7% were at the federal poverty level, 30% were between the federal poverty level and low income, 7% were between low income and middle class, 48% were middle class, and 7% were upper middle class and high income. These percentages do not add to 100% due to rounding.

As for level of education of the parents, 26% of the mothers and 28% of the fathers completed high school or its equivalent, 48% of both the mothers and the fathers had completed some college or technical school, 19% of the mothers and 16% of the fathers had earned a bachelor’s degree, and 7% of the mothers and 8% of the fathers had obtained an advanced degree.

A majority of the mothers and fathers were married (71%), with another 14% reporting that they were living together. The other 15% indicated that they were single or engaged.

Ninety-two percent of the fathers and 82% of the mothers reported being employed. While the mothers were working, 62% of the toddlers were cared for by an unrelated adult, 33% were cared for by the child’s father, grandparent, or another relative, and 5% were cared for by the mother while working from home.

Procedures

IRB approval was secured at a large university located in West Texas before data were collected. A consent form and questionnaire packet were personally delivered and explained to each family by one of the researchers. The parents completed the questionnaires at their convenience and were instructed to bring the completed packets to their campus laboratory visit for the observational measures. The laboratory visit began with an assessment of the coparenting relationship in which the couple was asked to play together with their child for 10 minutes with provided toys. This family session followed McHale’s (1995) procedure involving both structured and unstructured tasks in which parents were asked to “teach the child to bang, stack, or fit objects together; and later, to play together with the objects in any way they wished” (p. 987), but no other directives were given regarding the tasks. This activity and the following observational procedures were videotaped for later coding by two different coders for each variable being measured. All videos and coding materials refer to participants by a uniquely assigned identification number.

To assess maternal caregiving behaviors, mothers were observed with their child in two different interactional scenarios. In the first, the mother was asked to complete a questionnaire while her
child was left to explore the room devoid of toys. The questionnaire was relevant to the baby but was only used as a distraction. This task was designed by Smith and Pederson (1988) to highlight differences in sensitivity by creating a situation in which the mother’s compliance with the request to complete a questionnaire would compete with her child’s demands for attention. Meanwhile, the fathers completed a task that was beyond the scope of this study. Our examination of the fathers ended with the coparenting measure in the current study.

After the mother-infant questionnaire situation, five activities were conducted following Rothbaum and Schneider-Rosen’s (1991) system for assessing insensitive interactions between mothers and their young children. A new box of toys was brought into the room for a free-play session in which the mother was instructed to play as she normally would with her child at home. After five minutes, the mother was instructed to read a book with her child and keep the infant from playing with the toys. A three-minute clean-up period followed in which the mother worked with her child to return all the toys to the box. The last two activities involved an easy puzzle, followed by a complicated shape-sorting task for mother and child.

**Measures**

**Acculturation.** The Acculturation Rating Scale for Mexican Americans-II (ARSMA-II; Cuéllar, Arnold, & Maldonado, 1995) was used to assess acculturation by measuring the mothers’ orientation towards Mexican culture. The mothers rated 30 items on a 5-point Likert-type scale ranging from not at all to extremely often or almost always with high scores indicating a very culturally oriented response. A mean score was calculated for Mexican Orientation. Bauman (2005) found evidence of construct validity for the ARSMA-II by comparing the distribution of acculturation levels in a culturally diverse and a culturally homogenous group of Mexican Americans. Cuéllar et al. (1995) found good internal reliabilities with a Cronbach’s alpha of .88 for this measure. Cronbach’s alpha for the current study was acceptable at .77 (Nunnally, 1978) for mothers’ Mexican Orientation.

**Generation.** Cuéllar’s et al. (1995) demographics questionnaire was used to assess generation level. A mother would self-identify as first generation if she was born in Mexico; second generation if she was born in the United States and either of her parents were born in Mexico; third generation if she was born in the United States, both of her parents were born in the United States, and all of her grandparents born in Mexico; fourth generation if she and her parents were born in the United States and at least one grandparent was born in Mexico with the remainder born in the United States; or fifth generation if she and her parents were born in the United States and all of her grandparents were born in the United States.

**Maternal sensitivity.** Video recordings of the Smith and Pederson’s (1988) competing attentional demands task were coded for sensitivity using Ainsworth’s rating system (Ainsworth, Bell, & Stayton, 1974). A mother’s behavior was rated on a 9-point scale with low scores representing the parent’s lack of response to the toddler’s signals or a misinterpretation of these
signals and high scores reflecting the parent’s ability to recognize and accurately interpret their toddler’s signals and provide an appropriate and timely response. Ainsworth’s measure is generally accepted for its construct validity and has been widely used in the assessment of maternal sensitivity (De Wolff & van IJzendoorn, 1997; Solomon & George, 2016). Interrater reliability was established in the current study by randomly selecting 50% of the cases for a second observer to score and code. Interrater agreement was 100% within one scale point.

**Insensitive caregiving.** Video recordings of Rothbaum and Schneider-Rosen’s (1991) tasks were coded for intrusiveness and disengagement using the National Institute of Child Health and Human Development [NICHD] Study of Early Child Care (1992) coding manual. According to the coding manual, intrusive interactions are insensitive and mother-centered with mother imposing her agenda despite signals from her child for a different activity, level, or pace. On the other hand, a disengaged mother appears emotionally uninvolved or detached, and unaware of her child’s needs for appropriate interaction to facilitate exploration. A mother’s behaviors were rated on a 4-point scale ranging from not at all characteristic to highly characteristic.

The NICHD Early Child Care Research Network (1999) provided support for the validity of these measures with reports of significant positive correlations between these measures of mothers’ interactive behavior and scores from home observations, suggesting that these measures tap aspects of maternal behavior consistent with meaningful caregiving behaviors assessed more naturalistically. Interrater reliability was established in the current study by two observers that independently scored and coded all the cases. Any discrepancies were discussed and resolved by the two raters to achieve 100% interrater agreement.

**Coparenting relationship.** The Coparenting and Family Rating System (CFRS; McHale, Kuersten-Hogan, & Lauretti, 2001) was used to assess the coparenting relationship. Video recordings of the family session with mother, father, and child were evaluated for cooperation, competition, and warmth between coparents. Cooperation in coparenting includes facilitating, building, and supporting each other in relation to their child. Coparental competition involves parents trying various ways to form a better relationship with the child than the other parent. Coparental warmth refers to warm, positive connectedness and humor between caregivers while engaging with their child. Each dimension was rated on a 5-point scale, where 1 is low and 5 is high.

McHale (1995) obtained evidence for the construct validity of these measures by examining their correspondence with staff ratings of similar behaviors assessed through waiting room observations and self-reports of coparenting involvement and satisfaction. McHale et al. (2001) also found adequate interrater reliabilities across several studies employing the CFRS codes, ranging from .64 to .87 across scales used in the current study. Interrater reliability was established in the current study by randomly selecting 35% of the cases for a second observer to score and code. Interrater agreement was 100% within one scale point.
Results

Analyses were conducted in two steps. First, correlations among demographic characteristics of mothers, sociocontextual factors, and maternal caregiving behaviors were computed to determine the direction and magnitude of the relationships between mothers’ age, education, and household income; mothers’ generation level and Mexican orientation; coparental competition, cooperation, and warmth; and maternal sensitivity, intrusiveness, and disengagement. Table 2 provides the bivariate correlations for all of the study variables. Results were considered significant at $p < .10$. The alpha level was raised to increase the ability to detect small or even moderate effects since only very large effects are generally detected with a small sample (Morgan, 2017).

Table 2. Correlations among Demographic Characteristics of Mothers, Sociocontextual Factors, and Maternal Caregiving Behaviors

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<td>6. Competition</td>
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<td>7. Cooperation</td>
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Note: †$p < .10$, *$p < .05$, **$p < .01$.

Next, multiple regression analyses were performed to test whether sociocontextual factors would predict maternal caregiving behaviors in Mexican Americans. Mothers’ age, level of education, and household income were entered in the first block to control for the influence of these demographic characteristics. Coparenting behaviors including competition, cooperation, and warmth were entered in the second block. Lastly, mothers’ generation level and Mexican orientation were entered in the third block of the hierarchical regression analyses for each maternal caregiving behavior to determine the individual and combined significance of coparenting and culture. The results for maternal sensitivity are presented in Table 3, maternal intrusiveness in Table 4, and maternal disengagement in Table 5.
### Table 3. Regression Analyses Summary for Mothers’ Demographic Characteristics, Coparenting Behaviors, and Acculturation Predicting Maternal Sensitivity

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*Note:* †p < .10.
Table 4. Regression Analyses Summary for Mothers’ Demographic Characteristics, Coparenting Behaviors, and Acculturation Predicting Maternal Intrusiveness

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*Note:* †p < .10, *p < .05.
Table 5. Regression Analyses Summary for Mothers’ Demographic Characteristics, Coparenting Behaviors, and Acculturation Predicting Maternal Disengagement

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Coparenting in Mexican American Mothers and Fathers

Notable relationships were found among mothers’ self-reported acculturation variables and observer-rated coparenting behaviors between mother and father while interacting with their toddler. The mothers’ generation level related significantly and negatively with coparental warmth (r = -.41, p < .05). Post hoc analyses further revealed that mothers’ generation level was significant negatively in predicting coparental warmth (β = -.43, p < .10). These results suggest that there was less warmth between coparents when mothers’ generation level was higher.
Caregiving in Mexican American Mothers

Noteworthy associations were found between mothers’ self-reported Mexican orientation and observer-rated maternal caregiving behaviors during dyadic interactions between mother and toddler. The results showed that mothers’ Mexican orientation was correlated with maternal sensitivity \((r = .37, p < .10)\) and was a significant predictor of sensitive mother-child interactions \((\beta = .44, p < .10)\). These findings suggest that less acculturated mothers were more responsive to her baby’s signals for interaction. The results from this study revealed that the mothers’ Mexican orientation was related negatively to disengagement in their caregiving \((r = -.38, p < .05)\). This finding indicates that more Mexican-oriented mothers were less disengaged in interactions with her child.

Coparenting and Caregiving in Mexican Americans

The study results showed that coparental competition was correlated significantly with maternal intrusiveness \((r = .48, p < .05)\) and significant in predicting intrusive interactions with her child \((\beta = .80, p < .05)\). These findings suggest that coparenting relationships in which mothers and fathers compete for their child’s attention or affection to the exclusion of the other parent was related to and predictive of intrusiveness in mothers’ care for her child. Coparental warmth gained significance when the acculturation variables were added in the third step \((\beta = .50, p < .10)\). This finding suggests that warm, positive connectedness between coparents predicts maternal sensitivity in mothers that maintained their Mexican orientation.

Discussion

The purpose of this study was to investigate how sociocontextual factors correlate with and predict maternal caregiving behaviors in Mexican American mother-child dyads. The study examined the relationship between acculturation and coparenting and the influence of acculturation and coparenting on maternal caregiving behaviors in Mexican Americans.

Results of the study showed that higher scores for mothers’ Mexican orientation were related to higher sensitivity and lower disengagement ratings during interactions with their children. These results are contrary to Calzada and Eyberg’s (2002) findings that higher acculturation in Puerto Rican mothers was related to more warmth and involvement with their children. The less acculturated Mexican American mothers in our study displayed sensitivity and responsiveness to her child; they were attuned to the toddler’s signals and responded to them promptly and appropriately. These mothers showed little to no detachment or emotional uninvolved during laboratory assessments with their children. Taken together, our findings demonstrate a strong sense of family and dedication to children that is characteristic of Mexican cultural values (Caldera et al., 2015; Cauce & Domenech-Rodríguez, 2002).
On the other hand, the multiple regression analysis used in this study determined that the participants’ coparental competition rating predicted intrusiveness in maternal caregiving. In other words, coparenting relationships in which mothers and fathers competed for their child’s attention or affection to the exclusion of the other parent was associated with intrusiveness in the mothers’ care for their children. This finding supports McHale and Rasmussen’s (1998) position that competitive coparenting relationships are disruptive to family functioning. Caldera and Lindsey (2006) suggest that a negative or discordant coparenting relationship can be stressful for parents, which may leave them less available for sensitive dyadic interactions with their child.

Caregivers engaged in this kind of destructive coparenting relationship also approach family interactions in parent-centered ways (McHale et al., 2001), which is evident in this sample by the significant relationship between coparental competition ratings with maternal intrusiveness ratings. Katz and Woodin (2002) had similar results that connect interparental conflict in the home with harsher and less responsive parent-child interactions. These findings suggest that coparental competition can be detrimental to parent-child interactions as children may be the recipient of parents’ emotional spillover (Cabrera et al., 2013). The competitive nature of the relationship between coparents may preoccupy the mother’s thinking when interacting with her child, thereby making her caregiving behaviors abrupt, forceful, and insensitive to her child’s signals. In the current study, the Mexican American mothers that had higher ratings for intrusiveness (National Institute of Child Health and Human Development [NICHD] Study of Early Child Care and Youth Development [SECCYD], 1992) during mother-child interactions in the lab would force their agenda, regardless of signals from the toddler that a different activity, level, or pace of interaction was wanted or needed.

Regarding acculturation, the findings showed that higher generation levels in our Mexican American mothers were associated with lower ratings of warmth between coparents in the coparenting relationship. This finding is consistent with a phenomenon that has been called the immigrant paradox, which refers to immigrants and children of immigrants experiencing more successful outcomes than their later generation peers (Buriel, 2012). The results are paradoxical because the later generation mothers, mothers that are supposedly more assimilated into American culture than more recent immigrants, were not faring so well in the warmth of their coparenting relationships. This finding also supports Lindsey and Caldera’s (2015) position that Mexican American families undergo sociocultural changes that can influence coparenting across successive generations. Overall, our findings provide evidence that retaining the culture of origin is beneficial to aspects of the coparenting relationship and certain maternal caregiving behaviors in Mexican American families.

**Strengths and Limitations**

This study adds much to the knowledge base of sociocontextual factors and maternal caregiving in Mexican American families. First, we focused solely on Mexican American families using a
noncomparative approach, which is a departure from a pervasive bias toward problem-focused research pertaining to Latino children, adolescents, and families (Harwood et al., 2002). The current study addresses the need for research on normative growth, development, and resilience in Mexican American families (Lindsey & Caldera, 2015). This study also addresses the call to focus on the influence of acculturation on coparenting in Mexican American families (Cabrera et al., 2013; Lindsey & Caldera, 2015). We evaluated the influence of mothers’ orientation to her Mexican heritage and her generation level in relation to the quality of the coparenting relationship and the quality of mothers’ caregiving behaviors. Lastly, Cabrera and colleagues (2013) note that “virtually no studies have included videotaped triadic interactions with Latino families” (p. 21). Our study addresses this gap in the literature; we used observational methods to examine the interactions among mother, father, and child as well as mother-child interactions in Mexican American families.

The main limitation of this study was the small sample size. A larger sample would increase the power to detect effects that may not have been picked up in the current study. We also discussed results that were significant at $p < .10$, which increases the chance of making a Type I error. These findings should be interpreted with caution.

The strategy used to determine interrater reliability in coding the coparenting variables and maternal sensitivity is also a limitation in this study. Due to the availability of trained research assistants, we were unable to have two coders of all cases and instead had a second coder rate a portion of randomly selected cases for these measures. Future studies should utilize two coders of all cases to determine interrater reliability in coding observational data.

Another limitation of this study is the sampling method used to recruit participants. The use of a convenience sample limits the generalizability of the results to only the participants in this study. Continued research in this area would strengthen the knowledge gained in this study of how sociocontextual factors collaborate to predict maternal caregiving behaviors in Mexican American families.

**Conclusions and Implications for Practice**

This study demonstrated how sociocontextual factors could either support or compete with a mother’s ability to provide adequate care for her child or predict her caregiver behaviors (George & Solomon, 2008). The mothers’ Mexican orientation was related to maternal sensitivity and low disengagement during parent-child interactions, which provides evidence that a mother’s cultural background is associated with the parenting values and childrearing beliefs that guide her caregiving practices and maternal caregiving behaviors. On the other hand, this study’s analysis showed that competition in the coparenting relationship was a predictor of maternal intrusiveness in the Mexican American mothers’ caregiving, which illustrates how sociocontextual factors hindered optimal caregiving behaviors. These findings add to the existing literature and advance the study of parent-child and family relationships in Mexican American families with a toddler.
The results of this study also offer some guidance for family practitioners and those that work with Mexican American families. Practitioners should acknowledge both parents as important contributors to childrearing and consider the way mother and father function together in designing an intervention strategy (Lindsey et al., 2005). Interventions should encourage participation of both parents and strengthen coparenting quality, rather than targeting individual parents or parenting behavior (Lindsey & Caldera, 2015). Moreover, this study illustrated the positive values demonstrated by those participants who maintained a Mexican orientation. These findings indicate the usefulness in acknowledging, fostering, and endorsing the cultural values of Mexican American families in a clinical setting (Barnett et al., 2016). Clinicians can tap into these family-centered traditions to help strengthen the way Mexican American parents work together to raise their children.

References


Jennifer Ross, Ph.D., is an Assistant Professor in the Department of Psychology and Sociology at Tuskegee University.

Yvonne Caldera, Ph.D., is a Professor in the Department of Human Development and Family Studies at Texas Tech University.
Berry Good Programming: An Examination of Consumers’ Purchasing Intent of Florida Strawberries in Out-of-State Markets

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Florida strawberry producers have faced increased competition and difficulties marketing their products over recent years. The purpose of this study was to explore eastern United States consumers’ purchasing intent of Florida strawberries to develop communication and marketing strategies for Florida strawberries in a competitive market. The Theory of Planned Behavior (TPB) guided the research, and focus groups were conducted in North Carolina, Tennessee, Ohio, Massachusetts, and New York. Participants had positive attitudes toward purchasing Florida strawberries, and past experiences and interactions with others influenced their purchasing intent, but their perceptions of behavioral control were low. Participants with neutral attitudes and limited behavioral control had lower intent to purchase Florida strawberries in the future compared to other participants. Extension could help producers increase purchasing intent by increasing perceived behavioral control, making the growing location easily visible on the strawberry labels, and facilitating personal experiences between consumers and the product.

Keywords: local food, strawberries, theory of planned behavior, purchasing intent, marketing

Introduction & Theoretical Framework

Consumers have indicated a preference for local food, and the demand for locally grown produce has increased during the past decade (Becot, Conner, Nelson, Buckwalter, & Erickson, 2014; Jefferson-Moore, Robbins, Johnson, & Bradford, 2014). Not only are locally produced food products viewed as healthy and safe, but they also appeal to consumers’ emotions (Keeling-Bond, Thilmany, & Bond, 2009; Onozaka, Nurse, & McFadden, 2010). Many states in the United States (US) have pursued branding of state agricultural products to promote locally grown products in out-of-state markets (Onken & Bernard, 2010). Typically, consumers prefer to purchase food grown as close as possible to where they live (Rumble & Roper, 2014), which is a form of regional ethnocentrism (Siemieniako, Kubacki, Glinska, & Krot, 2011). Ethnocentrism reflects consumers’ moral concerns with purchasing food from outside of their region and the economic impact it would have (Shimp & Sharma, 1987). However, consumers

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Regional Purchasing Intent for Strawberries

in urban areas do not always have access to local foods at farmers markets and find shopping at grocery stores to be more convenient (Penney & Prior, 2014). Regardless of their preference, consumers do not always have the option to purchase food from their region depending on the growing season of commodities in the area (Becot et al., 2014; Jefferson-Moore et al., 2014).

While there are a number of commodities that could be used to explore purchasing intent for domestically produced products, this study focused on strawberries. Strawberries are not grown year-round in every region, which limits the availability of local, state-grown strawberries to consumers in different regions. Strawberry growers, like many other farmers, have to ship their products across state lines and sell to consumers in regions outside their own (Stark, 2016). Additionally, domestically grown strawberries have been faced with increasing competition from cheaper, Mexico strawberries (U.S. Department of Agriculture-Economic Research Service [USDA-ERS], 2013; Wu, Guan, & Whidden, 2012). Understanding consumers’ purchasing intent and perceptions of local food grown in America, but in a different state, will be important to the success of farmers who are having to sell produce in an increasingly competitive market.

The majority of strawberries sold in the US are shipped from California, which produced over two billion pounds of strawberries in 2012 (USDA-ERS, 2013). Florida’s strawberry industry contributes to 13% of the US value of strawberries (Florida Department of Agriculture and Consumer Services [FDACS], 2017), but it is the second largest crop in market value in Florida (USDA-National Agricultural Statistics Service [NASS], 2017). The Florida strawberry industry has contributed approximately $300 million to the state’s economy each year (FDACS, 2013). Additionally, Florida is the top domestic producer of strawberries during the winter months when other areas are too cold to grow the fruit (Agricultural Marketing Resource Center, 2018) and ships approximately 70% of its strawberries to states east of the Mississippi River (Stark, 2016; S. Harrell, personal communication, January 24, 2015). The influx of Mexico strawberries occurs during winter months (USDA-ERS, 2013; Wu et al., 2012), which has caused Florida’s market share of strawberries to decrease (Bareuther, 2016). During the winter season, consumers have the limited option of purchasing Florida strawberries or international strawberries.

Floridians have agreed they would prefer to purchase Florida-grown strawberries labeled Fresh from Florida (Ruth & Rumble, 2016; Ruth, Rumble, & Settle, 2016). However, Floridians have not been aware of the strawberry growing season in Florida, which has made it difficult to market the fruit (Ruth et al., 2016). If consumers within the state that produces the strawberries do not recognize the growing season, out-of-state consumers cannot be expected to know when Florida strawberries would be available to purchase. Regional and geographical influences on local food preferences could affect consumers’ preferences for Florida strawberries (Aprile, Caputo, & Nayga, 2016). Because strawberry products hold little differences amongst them, Extension could help the strawberry industry determine ways to better promote Florida strawberries in a more competitive market to an audience who may not be aware the product is even available.
There is a need to explore the awareness and perceptions of Florida’s strawberry season in states where the strawberries are distributed. Exploring consumer ethnocentrism at a regional level (Fernández-Ferrín & Bande-Vilela, 2013) will help producers and distributors create brand awareness and increase demand for the product when it is in season. Previous research has recommended producers use simple and visible marketing strategies that target the emotional and cultural needs of consumers (Aprile et al., 2016; Lombardi, Migliore, Verneau, Schifani, & Cemblo, 2015). Additionally, Extension could aid producers and distributors in the adoption of these strategies to help promote locally grown food (Knight & Chopra, 2013). In this study, we will explore regional consumers’ intent to buy Florida strawberries in order to understand consumers’ purchasing intent and preferences related to domestically-grown food. While not every state in the country produces strawberries, they will produce commodities that are sold in other regional markets. The findings from this study can provide insight into how Extension can best help producers and distributors promote state-grown products across state lines.

**Theory of Planned Behavior**

The theory of planned behavior (TPB) guided this study (Ajzen & Fishbein, 1980) and can be used to predict behavior (Warner & Schall, 2015). According to Ajzen (2011), subjective norms, attitude toward a behavior, and perceived control of the behavior all predict behavioral intent. Within TPB, subjective norms describe the influence of an individual’s surroundings on his/her intention or behavior. Another factor in the TPB is the attitude toward the behavior. Perloff (2013) defined attitude as the “learned global evaluation of an object (person, place, or issue) that influences thought and action” (p. 71). Ajzen and Fishbein (1980) described the attitude toward a behavior as how favorable or unfavorable a person felt toward a behavior. Research has concluded attitudes that are more favorable indicated a greater likelihood for a behavior to be performed. The final factor of the TPB influencing intention is perceived control of the behavior. An individual must perceive the behavior as something he/she can accomplish for intention to be established (Ajzen, 1988).

Researchers have used the TPB to guide several different studies related to agriculture and food production (Aertsens, Verbeke, Mondelaers, & Huylenbroek, 2009; Holt, 2014; Lorenz, Hartmann, & Simons, 2015; Rainbolt, Onozaka, & McFadden, 2012). Aertsens et al. (2009) and Holt (2014) both found that the three TPB variables predicted intent to purchase organic and local food respectively. Aertsens et al. (2009) also determined moral or personal norms influenced consumption. Moral norms reflect an individual's belief that he or she is acting in a manner that is either right or wrong (Schwartz, 1973). Similarly, Lorenz et al. (2015) and Rainbolt et al. (2012) determined that the TPB could be used to predict the purchase of local food products and that the addition of personal norms strengthened the overall model, but behavioral control and social norms were the strongest predictors (Rainbolt et al., 2012). Holt (2014) also concluded that respondents’ prior experience with purchasing local food was predictive of their intent to purchase locally in the future.
Purpose & Objectives

The purpose of this study was to explore eastern US consumers’ purchasing intent of Florida strawberries. The research question that guided this study was:

How do eastern US consumers’ attitudes, subjective norms, and perceived behavioral control influence their intent to purchase Florida strawberries?

Methods

Qualitative methodology is often used in research when an issue requires exploration and detailed insight into a problem (Creswell, 2013). Focus groups were used to fulfill the purpose of this research because there was a limited understanding of how eastern US consumers perceived Florida strawberries (Powell, Single, & Lloyd, 1996). Focus groups have been a useful tool to allow participants to discuss ideas in a group setting (Morgan, 1998). A disadvantage of focus groups is the phenomenon of groupthink, where everyone agrees, and the minority opinion is not expressed, which can bias the results (Morgan, 1998). Another issue with qualitative research is that the findings are not generalizable to the population of interest (Robinson, 1999), but this study was more interested in gathering deeper insight into eastern US consumers’ purchasing intent of Florida strawberries than in generalizing the results.

The population of interest was eastern US strawberry consumers (east of the Mississippi River), and participants from the study were selected from five purposively selected states. These states represented five different geographic regions where Florida strawberries were shipped for sale (New England, Middle Atlantic, South Atlantic, East South Central, and East North Central; S. Harrell, personal communication, January 24, 2015). Focus groups were conducted in Charlotte, North Carolina; Nashville, Tennessee; Columbus, Ohio; New York (Brooklyn), New York; and Boston, Massachusetts in March and April of 2015. These specific locations were chosen due to the cities’ large population size and the research teams’ access to facilities to host the focus groups. A third-party marketing company recruited the participants via phone. The marketing company bought a marketing list of names and contact information for each focus group location. Potential participants were randomly selected from the marketing lists and contacted for recruitment and screening. All participants had to answer “yes” to a filter question asking if they had purchased fresh strawberries in the past 12 months. Upon completion of the focus groups, the participants were compensated with $70. Participants did not necessarily live in the cities of the focus groups and may have traveled from nearby towns or suburbs. The focus groups in Nashville and Charlotte were completed in March, which was close to the peak of Florida’s strawberry season. Two focus groups were conducted in each state (10 total). A pseudonym was assigned to each participant for anonymity in the reporting of the results.

A description of the focus group locations has been provided to add understanding to the context of the research and help with the transferability of the findings (Lincoln & Guba, 1985). All the
states’ strawberry seasons were in May and June, which is outside of Florida’s growing season (North Carolina Department of Agriculture and Consumer Services, 2015; Our Ohio, 2015; Pick Tennessee Products, 2013; Pick your Own, 2015a, 2015b). Charlotte, North Carolina, has a population over one million people, and Nashville, Tennessee, is home to over 900,000 residents. Columbus, Ohio, has over one million residents, while New York, New York, had the largest population with over 12 million people living in the area. The final city was Boston, Massachusetts, which has a population of over four million (U.S. Census Bureau, 2010). As described by Gallup (2014), North Carolina and Tennessee residents have conservative political ideologies (38.9% and 43.2% respectively), while residents in Ohio, New York, and Massachusetts have moderate political ideologies (37.3%, 35.8%, and 38.1%). Research has also found that more chain food stores are located outside of inner-cities (Chung & Myers, 1999); New York has typically had few supermarkets, but a variety of bodegas (Gordon et al., 2011).

Each focus group consisted of four to ten participants, with an average of eight participants per group. Kreuger and Casey (2015) recommended that focus groups use six to twelve participants; however, Greenbaum (2000) found that there were no significant differences in focus groups if only four to six participants were present. There were 75 total participants (n = 75) in this study. The majority were white, female, and earned an annual income of less than $75,000. More than half were between the ages of 45 and 64. Approximately one-third of the participants reported their political ideology as moderate. There were 16 participants in Charlotte, 17 in Nashville, 16 in Columbus, 12 in Brooklyn, and 14 in Boston (there were two focus groups in each state). A full description of participants in each state can be seen in Table 1 (some participants elected not to answer all demographic questions).

Table 1. Description of Respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>NCb (n = 16)</th>
<th>TNc (n = 17)</th>
<th>OHd (n = 16)</th>
<th>NYe (n = 12)</th>
<th>MAf (n = 14)</th>
<th>Total (n = 75)</th>
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<td>27.3 (3)</td>
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<td>0 (0)</td>
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<td>African American</td>
<td>43.8 (7)</td>
<td>15.8 (3)</td>
<td>25.0 (4)</td>
<td>66.7 (8)</td>
<td>7.1 (1)</td>
<td>28.9 (22)</td>
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<td>Asian or Pacific Islander</td>
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<td></td>
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<td></td>
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<tr>
<td>White</td>
<td>56.3 (9)</td>
<td>73.7 (14)</td>
<td>62.5 (10)</td>
<td>25.0 (3)</td>
<td>71.4 (10)</td>
<td>60.5 (46)</td>
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<tr>
<td>Other</td>
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<td>12.5 (2)</td>
<td>8.3 (1)</td>
<td>7.1 (1)</td>
<td>5.3 (4)</td>
</tr>
</tbody>
</table>

aParticipants elected not to answer all demographic questions.
### Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>NC(^b) ((n = 16))</th>
<th>TN(^c) ((n = 17))</th>
<th>OH(^d) ((n = 16))</th>
<th>NY(^e) ((n = 12))</th>
<th>MA(^f) ((n = 14))</th>
<th>Total ((n = 75))</th>
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<td>41.2 (7)</td>
<td>26.7 (4)</td>
<td>27.3 (3)</td>
<td>15.4 (2)</td>
<td>28.2 (20)</td>
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<td>$50,000-$74,999</td>
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<td>23.5 (4)</td>
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<td>36.4 (4)</td>
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<td>25.6 (18)</td>
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<td>17.6 (3)</td>
<td>46.7 (7)</td>
<td>27.3 (3)</td>
<td>15.4 (2)</td>
<td>25.6 (18)</td>
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<td>$150,000-$249,999</td>
<td>0 (0)</td>
<td>11.8 (2)</td>
<td>0 (0)</td>
<td>9.1 (1)</td>
<td>7.7 (1)</td>
<td>5.6 (4)</td>
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<td>$250,000 or more</td>
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<td>0 (0)</td>
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<tr>
<td>Age ((n = 73))</td>
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<td>18-24</td>
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<td>0 (0)</td>
<td>6.3 (1)</td>
<td>9.1 (1)</td>
<td>0 (0)</td>
<td>2.7 (2)</td>
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<td>25-34</td>
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<td>6.3 (1)</td>
<td>12.5 (2)</td>
<td>18.2 (2)</td>
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<td>9.6 (7)</td>
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<td>35-44</td>
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<td>17.8 (13)</td>
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<td>45-54</td>
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<td>43.8 (7)</td>
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<td>21.4 (3)</td>
<td>27.3 (20)</td>
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<td>55-64</td>
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<td>37.5 (6)</td>
<td>25.0 (4)</td>
<td>27.3 (3)</td>
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<td>65-74</td>
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<td>6.3 (1)</td>
<td>6.3 (1)</td>
<td>18.2 (2)</td>
<td>14.3 (2)</td>
<td>9.6 (7)</td>
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<td>Political Ideology ((n = 73))</td>
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<td>Very Liberal</td>
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<td>23.5 (4)</td>
<td>0 (0)</td>
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<td>14.3 (2)</td>
<td>8.2 (6)</td>
</tr>
<tr>
<td>Liberal</td>
<td>31.3 (5)</td>
<td>11.8 (2)</td>
<td>18.8 (3)</td>
<td>50.0 (5)</td>
<td>21.4 (3)</td>
<td>24.7 (18)</td>
</tr>
<tr>
<td>Moderate</td>
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<td>23.5 (4)</td>
<td>37.5 (6)</td>
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<td>42.9 (6)</td>
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<td>Conservative</td>
<td>31.3 (5)</td>
<td>29.4 (5)</td>
<td>31.3 (5)</td>
<td>20.0 (2)</td>
<td>21.4 (3)</td>
<td>27.4 (20)</td>
</tr>
<tr>
<td>Very Conservative</td>
<td>12.5 (2)</td>
<td>11.8 (2)</td>
<td>12.5 (2)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>8.2 (6)</td>
</tr>
</tbody>
</table>

\(^{a}\) Respondents could select more than one answer.  
\(^{b}\) Percentages for income in North Carolina based on 15 responses.  
\(^{c}\) Percentages for age in Tennessee based on 16 responses.  
\(^{d}\) Percentages for income in Ohio based on 15 responses.  
\(^{e}\) Percentages for age, gender, and income in New York based on 11 responses; Percentages for political ideology based on 10 responses.  
\(^{f}\) Percentages for income in Massachusetts based on 13 responses.

Before the focus groups were conducted, a panel of experts reviewed the moderator’s guide for validity. The panel consisted of two faculty members from the University of Florida and two strawberry industry professionals. The moderator’s guide was semistructured and started with broad questions about where the participants purchased strawberries, how often they purchased strawberries, and how they selected strawberries for purchase. Subsequent questions asked about the participants’ perceptions of Florida strawberries, California strawberries, and strawberries grown in Mexico. Participants were also prompted to answer questions specifically about their preferences related to taste, appearance, social interactions, supporting local farmers, and growing location when purchasing strawberries.
Environmental triangulation was used to maximize the findings in the study by replicating the focus groups in five different states (Guion, 2002). Researchers use this type of triangulation to determine if findings remain the same in different environmental conditions. The various locations of the focus groups and the fact that not all of the focus groups were conducted during the peak of Florida’s strawberry season could have influenced the results of this study (Guion, 2002). Additionally, the researchers used member checking to establish the credibility of the research by reading a summary of the discussion back to the participants upon the conclusion of the focus groups and confirming that the conclusions were accurate.

All of the focus groups were recorded with two audio recording devices and by a note taker who took observational notes throughout the conversations. The recordings were transcribed with the aid of the notes to add clarity to the transcriptions. Thick, rich descriptions of the findings are provided with the results to aid in the transferability of the study (Lincoln & Guba, 1985). Quotes from participants were edited for grammar to help increase the readability of the manuscript. Researchers utilized the computer software, MAXQDA 2015 (VERBI Software, 2014) for data analysis, to analyze the data. This software helps the researchers keep track of the assigned codes for analysis and quickly retrieve examples for each assigned code. Data were evaluated using a priori coding and guided by the TPB. This type of coding is used when a research question is focused and heavily guided by theory (Kuzel, 1999). Attitudes toward purchasing Florida strawberries, subjective norms, and perceived behavioral control of purchasing Florida strawberries were coded along with purchasing intent. The computer software served as an audit trail to detail how the data were coded throughout the data analysis process, and peer debriefing was utilized as an external check for the interpretations of the data (Lincoln & Guba, 1985).

Researcher bias was identified to aid the reader in understanding the researchers’ position and how it may have influenced the implications made from the study (Merriam, 1988). The primary investigator and graduate assistant for the research had already completed a similar study the prior year with the population confined to Floridians only. Additionally, the graduate student working on the paper was born and raised in Florida but had no connections to the strawberry industry. Both researchers lived in Florida at the time of the study and had an interest in promoting locally produced agricultural products.

**Results**

**Attitude Toward Behavior**

Attitude toward purchasing Florida strawberries emerged during the focus groups as participants discussed what influenced their selection decisions of strawberries. When asked about the barriers and benefits of purchasing Florida strawberries, many of the participants described the freshness and taste of the strawberries to be important. When Annie of Charlotte was asked if she would consider purchasing Florida strawberries, she replied, “I would feel like Florida
strawberries were fresher, and I guess they are. If you have other strawberries to compare with, they probably would have a better taste.” Maggie from Boston had a similar attitude and explained, “The ones from Florida seem to be sweeter.” Byron from Nashville also described how “the color of Florida strawberries are more vibrant [than California].”

Participants also discussed how the strawberries from Florida would not have to travel as far to their geographic area, which could also reduce the cost. John from Columbus explained,

I feel like it would be a smart idea for stores to sell Florida strawberries. I figure if they are getting them from California or from Mexico . . . the cost of moving them would be a lot more than just from Florida.

As the conversations moved to discuss the importance of how far the strawberries travel, Allen of Brooklyn said, “[Florida strawberries] are going to be fresher because they are closer and they can drive them up in a day and a half.” The participants appeared to associate the idea that the distance the strawberries traveled to their grocery stores was connected to the freshness and taste of the fruit.

However, not all of the participants expressed strong attitudes or preference toward Florida strawberries. Some participants in Brooklyn were unsure about the benefits or barriers to purchasing strawberries grown in Florida. When asked about purchasing Florida strawberries, Meredith said, “I do not have a feeling about Florida strawberries.” Anita added, “Other than distance, I cannot think of any other benefits. Only because I have not really noticed where [strawberries] come from.” Similarly, in Boston, Olivia said, “I do not see any benefit to purchasing Florida strawberries.” The rest of the participants in the focus group indicated agreement but did not list any barriers to purchasing Florida strawberries either.

**Subjective Norms**

As participants described their purchasing habits and preferences for strawberries, many discussed how social influences and interactions affected their intent to purchase strawberries. These conversations were coded under subjective norms. When asked why she might purchase Florida strawberries compared to those from California or Mexico, Meredith of Brooklyn said she would purchase them out of “loyalty to the east coast.” Many of the participants echoed this sentiment and agreed that a sense of loyalty drove their preference for Florida strawberries.

Participants also discussed how conversations with their friends and family who had positive experiences with Florida strawberries increased their intent to purchase them. Jane from Columbus explained,

I do have a coworker who just recently moved here from Florida, and I mentioned something about coming to the focus group tonight, and she said oh, ‘I hope they give
you Florida strawberries to taste because [they are] really good.’ So, I have heard really good things about Florida strawberries. . . . If I saw them, I would probably buy them.

Participants also brought up how their own experiences with Florida strawberries were influencing their purchasing decisions. Frederick of Boston explained that he had been going to Florida for a number of years to visit family and they would pick Florida strawberries together so he “would just buy them for sentimental reasons.” As participants like Frederick and Jane described their own or others’ experiences with Florida strawberries, the other participants in the focus group expressed that their attitudes were changing and they were more interested in purchasing Florida strawberries compared to before the focus group. In Boston, Sylvia said, “I am learning a lot tonight.” Andy replied, “I never knew so much about strawberries,” and Sylvia expressed that she was going to “go to the store now” to see if they were carrying Florida strawberries. Similarly, in Brooklyn, Shauna said,

This discussion has been very informative because I have never paid attention to where strawberries are grown. I just know that I can go to the store and buy strawberries. . . . Now I will pay attention to where my strawberries are sourced from.

Other evidence of subjective norms emerged during conversations comparing California or Mexico to Florida strawberries. Current issues in California, like politics and the environment, were identified as reasons to purchase Florida strawberries. Kayla of Boston said, “I have kind of a bias against California, so that would be my reason for not purchasing from there. I think their governance is out of control.” Edward agreed and said, “Right now with the problems they are having in California with the drought. . . . I would pick Florida over California.” Labor regulations and farmworker welfare were reasons discussed for why participants would prefer not to purchase strawberries from Mexico. In Columbus, Tiffany said, “I think of the workers in Mexico being paid five cents an hour, and that factors into my decision [for purchasing strawberries]. I [am] starting to be more political on it.” Lilly from Boston had similar concerns for farm workers and explained that if Florida strawberry growers “could identify the ways in which workers were supported and the ways that farmers were paid for the strawberries,” she would be more willing to purchase them.

**Perceived Behavioral Control**

Participants were also asked if they felt like they had any control over whether or not they could purchase Florida strawberries in their state to understand their perceived behavioral control. Participants expressed concern about Florida strawberries being available for purchase in their local area. In Boston, Maggie said, “You can only buy what the store has.” Similarly, in Nashville, Mark said, “Florida strawberries are not always available.” Erik in Charlotte also explained, “[You are] at the mercy of the store. . . . If Florida strawberries are not there, they are not there.”
Participants also brought up experiences in stores where they did not have the option to choose Florida strawberries, or the packages were not clearly labeled with the growing location. Thomas of Boston said, “When I go to the store, there are only strawberries. The label does not say from Mexico or Florida or California.” In Charlotte, Angelica said, “In some instances, you may just have a choice of California or none. Or you may have the choice of Florida or none.” Overall, participants’ descriptions indicated limited behavioral control over purchasing Florida strawberries due to the availability in the stores.

Some participants did indicate they could find the growing location on strawberry packages, which helped increase their perceptions of behavioral control for purchasing Florida strawberries. Megan of Nashville said, “The location is marked on the packages. I know when I am buying Florida strawberries. They are available right now when locally grown ones are not, and that is my motivation for buying them.” A few participants even indicated they would ask their stores to carry Florida strawberries so they could purchase them. Jackie of Columbus explained, “You can request certain items to be carried in a store. I know that most of the grocery stores will try to accommodate you if they get enough requests for things.” Andy agreed and said that sometimes “it comes down to the customers being willing to say, ‘Hey, I would like this. I know it is available, why don’t you have it?’ Store workers will listen and take note and then take it to their superiors.”

**Purchasing Intent**

As the focus groups progressed, participants were asked how different strawberry characteristics influenced their purchasing intent as well as their intent to purchase Florida strawberries over domestic and international alternatives. After being informed of Florida’s growing season, the majority of participants indicated they would look for Florida strawberries during the winter growing season over Mexico strawberries. In Brooklyn, Chris explained, “It seems to me that we associate Florida with freshness, and I would definitely buy strawberries from Florida.” Anita agreed and said, “I would definitely buy strawberries from Florida.” In Columbus, Carl said, “All things being equal, I would buy Florida strawberries.”

Other participants brought up attributes in addition to growing location for when deciding what strawberries to purchase. Ken of Nashville said, “I would certainly buy Florida strawberries over anything from Mexico or Guatemala or wherever. If I had a choice between California and Florida, it would probably come down to cost and the appearance of the product.”

Tiffany of Columbus had a similar opinion,

> If I am given two packages and they are both American grown, one in California, one in Florida, and the prices are comparable, all bets are off because I am looking at the color of the berries, the firmness of the berries, the freshness of the berries.
Participants also indicated they preferred Florida strawberries over imported ones. In Nashville, Charlie said, “If you are standing there and one strawberry package says made in Mexico, and the other one says Florida, you are naturally going to take Florida.” Vinnie of Columbus expressed similar thoughts and said that because Florida strawberries would not be “crossing any borders,” he would prefer to purchase them.

However, not all participants expressed this strong intent to purchase Florida strawberries. In Boston, Thomas said, “It does not really matter where [strawberries] are from. I buy them on impulse and get them on sale. I couldn’t tell you the difference between California strawberries and Florida strawberries.” Olivia agreed and said, “I buy strawberries on a whim. If it came from Florida, it is okay. If it came from California, it is okay. If it came from Mexico, it is okay.” The rest of the participants in Boston shared the sentiment that they would not actively seek Florida strawberries or pay attention to the growing locations.

### Discussion and Implications

There is a need to understand consumers’ ethnocentrism at a regional level and understand their intent to purchase produce grown out-of-state (Fernández-Ferrín & Bande-Vilela, 2013). Due to the recent rise in competition from imported strawberries and their sales in out-of-state markets (USDA-ERS, 2013; Wu et al., 2012), this study specifically explored eastern US consumers’ perceptions and purchasing intent of Florida strawberries. The qualitative findings from this study cannot be generalized to the population; however, they can provide necessary insight into understanding consumers’ purchasing intent of Florida strawberries. A detailed description of the focus group locations, the participants, and the Florida strawberry industry have been provided to aid in the transferability of the implications and recommendations to other commodities and regions where appropriate (Lincoln & Guba, 1985).

The majority of participants described positive attitudes toward Florida strawberries related to freshness and taste, which was consistent with prior research (Ruth & Rumble, 2016; Ruth et al., 2016). Participants agreed their preference for Florida strawberries was related to the relatively shorter distance the product had to travel compared to competitors. Purchasing intent reflected the participants’ positive attitudes, and many participants used Florida strawberry qualities to justify their intent to purchase in the future.

Some participants did have a difficult time identifying positive attributes of Florida strawberries, and the same participants did not describe a strong purchasing intent. The focus groups were conducted in urban locations, and some participants may not have been knowledgeable about agriculture. Additionally, farmers markets may not be as accessible to participants who lived in urban locations compared to participants who lived in suburban areas (Penney & Prior, 2014), which may account for the varying levels in attitudes and experiences with Florida strawberries. Another reason for the differences in attitudes (and other characteristics from TPB) could be due to one or a few vocal participants sharing an opinion that does not necessarily reflect the
Regional Purchasing Intent for Strawberries

consensus. Additionally, focus groups in Boston and Brooklyn were conducted at the end of strawberry season, while the rest were conducted during the height of the season. The difference in timing may have influenced the participants’ familiarity with Florida-grown strawberries at the time. Regardless of attitude being positive or negative, there did appear to be an association with purchasing intent as described by the TPB (Ajzen, 1988).

Subjective norms also appeared to influence the intent to purchase (Rainbolt et al., 2012). A number of participants indicated that hearing about how great Florida strawberries were from their peers increased their likelihood to look for the product in stores. Additionally, participants with positive prior experiences with Florida strawberries agreed they were likely to purchase in the future, which was consistent with prior research (Holt, 2014). These participants said that the strawberries brought back happy memories, and they would purchase them for that feeling. Some participants discussed political and economic reasons they would purchase Florida strawberries compared to those from California or Mexico. The participants were also concerned for the welfare of the strawberry workers both in Mexico and in Florida. The presence of subjective political norms in some of the focus groups could be the result of cultural and political differences between the states. These attitudes may also be more reflective of moral or personal norms, rather than subjective norms (Aertsens et al., 2009).

Participants expressed a spectrum of attitudes toward behavioral control for purchasing Florida strawberries. Some participants felt they had limited control over whether or not they could purchase Florida strawberries. Many said they had no control over whether their stores would sell them or if the growing location would be available/visible on the label. Because perceived behavioral control is directly related to intent to purchase (Ajzen, 1988; Rainbolt et al., 2012), participants with this perception of behavioral control would likely have a weak purchasing intent for Florida strawberries. Evidence of this weak purchasing intent was demonstrated when participants described how they would purchase strawberries just based on prices. However, some participants explained they would ask their grocery stores to sell Florida strawberries, exhibiting high behavior control.

Even though some participants said they would not care where their strawberries were grown, the majority of participants agreed they would look for Florida strawberries while shopping. Yet attributes aside from growing location would also influence participants’ purchasing decisions. The bottom line of price came up several times as did taste and freshness. Other participants indicated they would always buy Florida strawberries over those imported from another country; however, this attitude was not consistent when compared to other domestic strawberries. Consumer ethnocentrism was apparent, but it seemed to be more important at a national level rather than regional level because the participants did not differentiate preferences between domestic strawberries (Shimp & Sharma, 1987).
Recommendations

The majority of states have to export their food products to other locations and develop effective strategies to promote and market their products outside of their local markets. While the findings of this study are specific to Florida strawberries and cannot be generalized, the recommendations could hold value to other states and commodities that have to market outside their state. Personal experiences have been shown in prior literature, and this research, to have a positive impact on purchasing intent (Holt, 2014). Extension personnel should work with local strawberry growers and distributors to develop messages and educational programs to promote Florida strawberries and other locally grown produce, particularly in urban locations. In addition, promoting Florida strawberries at state fairs, community events, and in grocery stores through taste tests and cooking demonstrations could increase positive attitudes toward purchasing Florida strawberries. The personal interactions and experiences with growers and the products could increase perceived behavioral control and perceptions of social norms if consumers experience Florida strawberries in their local areas, which would increase consumers’ purchasing intent (Ajzen, 1988; Rainbolt et al., 2012). Extension personnel should also consider these recommendations when assisting producers in marketing other commodities across state lines.

Not all of the participants were able to identify specific attributes about Florida strawberries. These neutral attitudes were associated with weak purchasing intent, which indicated a need to develop communication material targeting attitudes to increase Florida strawberry sales. Social media, television, newspaper, magazine advertisements, and transportation advertisements (e.g., subway ads, bus ads, and billboards) that focus on the positive attributes of Florida strawberries, like availability in winter months, could help increase positive perceptions of the product, particularly when the product is in season.

Subjective norms should also be considered when developing communication to promote Florida strawberries (Rainbolt et al., 2012). Using spokespersons to share personal testimonies of their experiences about Florida strawberries and hosting events at community centers could help increase positive perceptions of subjective norms related to Florida strawberries and reinforce the cultural and emotional needs of the consumer (Aprile et al., 2016; Lombardi et al., 2015). Communication campaigns that focus on the fair treatment of farm workers could reinforce consumers’ moral norms, which would increase their purchasing intent as well (Aertsens et al., 2009).

While the findings from this study provide insight into consumers’ purchasing intent of Florida strawberries, they also reveal potential ways Extension can help producers increase perceptions of behavioral control in out-of-state markets. Including the growing location on the package in an easy-to-see design or using a state agricultural brand, like Fresh from Florida, are a few ways to increase perceived behavioral control of where strawberries are grown for consumers in the region.
store. Northern states may not be as familiar with the logo; however, inclusion of the growing location or state brand could signal consumers to consider the product origin while shopping, which would increase perceptions of behavioral control (Aprile et al., 2016; Lorenz et al., 2015). Because some participants said they would even ask their stores to carry Florida-grown strawberries, communication for the products could include a call-to-action for consumers to do this. Addressing consumers’ attitudes, subjective norms, and behavioral control through communication efforts could lead to increased intent to purchase Florida strawberries, or other commodities sold across state lines, in the future (Ajzen & Fishbein, 1980).

Future research should use a random sample survey of eastern US strawberry consumers to determine if these findings were reflective of the population. Additionally, this study measured stated preferences for strawberry purchases, which do not always align with revealed preferences. Researchers could address this limitation by collecting data at the point of purchase to gather their revealed, or actual, preference. Message frames should be tested to determine if they will have different influences depending on location or audience demographics. Based on the findings from this study, frames that should be explored include personal messages (subjective norms), availability of the season (perceived behavioral control), and freshness (attitude toward the behavior). This research could also be replicated with other state commodities, both in Florida and in other areas.

References


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Engagement in Cross-Cultural Large Lecture Classrooms: Using Top Hat Technology to Include Students in the Discussion

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A criticism of cross-cultural course requirements at the collegiate level is just how effective these courses are in promoting multiculturalism among students. Many of these courses are also taught in large lecture format, cultivating an environment in which students are passive receivers of information rather than active participants in open interactions with the instructor and their peers. Incorporating a student response system (SRS) into a cross-cultural large lecture course allows students to respond to questions anonymously while facilitating the active involvement and engagement that is necessary to facilitate student openness to adopting more pluralistic perspectives over the span of the course. This study addressed a gap in the literature by exploring (a) students’ perceptions of SRS’s anonymity, (b) whether SRS use impacts students’ feelings of engagement with their peers and course content, and (c) whether SRS use contributes to students’ achievement of course objectives. Results from a survey (n = 171) conducted in a large lecture diversity course that utilized an SRS provided initial support for the use of an SRS as a means of increasing engagement, eliciting honest responses on sensitive course content, and facilitating achievement of course objectives in large lecture diversity courses.

*Keywords:* pedagogy, student response systems (SRS), large-lecture, engagement, diversity

### Introduction

A criticism of cross-cultural course requirements at the collegiate level is just how effective these courses are in promoting multiculturalism among students (Miller-Spillman, Michelman, & Huffman, 2012). An additional challenge is that many of these courses are often taught in a large lecture format, sometimes with hundreds of students (Holland, Schwartz-Shea, & Yim, 2013). Large lecture formats cultivate a classroom environment in which students are passive receivers of information rather than active participants in open interactions with the instructor and their peers (Mayer et al., 2009). This results in a missed opportunity for engagement and discussion among a diverse body of students which could facilitate the achievement of course...
Engagement in Cross-Cultural Large Lectures

objectives (e.g., adopting a multicultural worldview). What's more, a distinction exists in the classroom environment of cross-cultural courses in that active involvement by students is crucial for them to effectively retain knowledge (i.e., constructivist approach) and further, to internalize the learned information and employ it in shaping their worldview (Fox-Turnbull & Snape, 2011). Because cross-cultural courses typically encompass content that can be sensitive in nature (e.g., religion, race), facilitating meaningful student interaction can be even more of a challenge. Many courses that fulfill university cross-cultural requirements are housed in family and consumer sciences units. Therefore, these issues and how to mediate them are valuable areas of research exploration.

Clickers are a useful pedagogical tool in large lecture courses. Substantial developments in functionality have transformed simple clicker systems into web-based student response systems (SRS) that students can access from their own devices (i.e., mobile apps, tablets). Instructors can now immediately share anonymous student response data with their classes. This connectivity could be especially useful in cross-cultural large lecture courses, creating an opportunity to highlight the collective responses of the class without singling out individual students (Taylor, 2013). Furthermore, viewing the class’s results allows students to observe the diverging viewpoints on cross-cultural issues within the classroom and can be supported by instruction from the professor that encourages students to reflect on and think critically about their positions on cross-cultural issues. Incorporating an SRS into a cross-cultural large lecture course could foster the active involvement and engagement necessary for students to be open to adopting more pluralistic perspectives over the span of the course.

A gap in the literature exists related to the SRS and its potential impact on students’ learning experiences in cross-cultural large lecture courses. The purpose of this study was to address this gap by exploring (a) students’ perceptions of the SRS’s anonymity, (b) whether SRS use impacts students’ feelings of engagement, and (c) whether SRS use contributes to students’ achievement of course objectives (e.g., awareness, reflection, critical analysis, cross-cultural learning).

Literature Review

Challenges to Cross-Cultural Course Instruction Mitigated by SRS Use

Cross-cultural competency is now considered to be an invaluable student learning outcome in many university curricula and is further attenuated through cross-cultural course requirements at the university level. Development of this soft skill is aimed at preparing students for employment in diverse industries (e.g., textile and apparel) and for membership in a global society by encouraging them to adopt a “global mindset that encompasses multiple perspectives . . . [and to] consider issues from a cultural, social, political, environmental, and economic framework” (LeHew & Meyer, 2005, p. 292). A number of factors challenge diversity courses’ efficacy in helping students achieve cross-cultural competency, many of which can be mitigated by the use of an SRS.
Student resentment. Students of all cultural backgrounds begin diversity classes with their own biases, values, and beliefs that can lead to a level of resistance when studying viewpoints differing from their own. Instructional management tools, such as participation and peer interaction, can help elicit a change in students’ motivations to explore their own cultural awareness (Brown, 2004). The positive effect of classroom engagement on diversity learning is highly documented (e.g., Holland, 2006; Lee, Williams, & Kilaberia, 2012; LeHew & Meyer, 2005; Miller-Spillman, Jackson, & Huffman, 2006). Recent research also provides support for an SRS in cultivating the engagement that is necessary to achieve diversity course learning outcomes (Holland et al., 2013).

Teacher credibility and the open classroom approach. Instructors’ pedagogical approaches can mitigate or facilitate student resentment in diversity courses. Brown (2004) stated that in order to be effectual leaders of diversity courses, instructors “must be multicultural and possess the skills to provide a classroom environment that adequately addresses student needs, validates diverse cultures, and advocates equitable access to educational opportunity” (p. 325). Thus, students’ openness to diversity learning is contingent on the extent to which the instructor is perceived to have sufficient cross-cultural knowledge (i.e., teacher credibility) and presents the information in a manner that is fair and considerate of all students’ beliefs. Teacher credibility has also been found to impact students’ openness to exploring divisive issues in class (Holland, 2006; Holland et al., 2013).

Instructors must also cultivate an open and interactive classroom by “encouraging and respecting student opinions, rather than simply lecturing to students who have no opportunity to respond” (Holland et al., 2013, p. 275). An SRS can be an effective means for instructors to engage with students during lectures and can demonstrate to students that the instructor is interested in their opinions (Salemi, 2009). Students may also experience increased feelings of engagement with their peers when anonymous question response data are shared with the class (Holland et al., 2013). The ability to view SRS feedback in real-time also allows the instructor to immediately incorporate commentary on the response data into the lecture. For example, an instructor can adjust to the specificities of the class by addressing poll results that are surprising or unexpected and can probe more deeply into student viewpoints by deploying additional SRS questions on the topic of study (Holland et al., 2013).

Large lecture course format. Diversity courses at the university level are often taught as large lectures, creating additional barriers to cross-cultural learning when students can “acquiesce into a large tranquil sea of anonymity” (Taylor, 2013, para. 2). Disengagement has been attributed to decreased efforts by students to understand the content presented in the classroom, decreased course performance, and an inability to articulate learning outcomes when reflecting on their experience in the large lecture course (Mayer et al., 2009). Further, Holland (2006) suggests that the larger the class size, the more difficult it is for an instructor to cultivate and maintain an open classroom environment. Implementing an SRS in a large lecture course can enhance skill
Engagement in Cross-Cultural Large Lectures

There are also many classroom management benefits associated with utilizing an SRS in a large lecture course. For example, instructors can easily track attendance, thereby increasing students’ motivation to attend class (Sprague & Dahl, 2010). Students’ pre-class preparation (e.g., readings) may also improve if the instructor uses an SRS for content polling (Beard, Morote, & Volcy, 2013). Content polling can also be used to informally evaluate students’ retention of course concepts, allowing the instructor to identify topics that merit additional focus prior to formal assessment on an exam (Heaslip, Donovan, & Cullen, 2014). However, research suggests that using an SRS for opinion polling “is most pertinent to teaching a diversity course” (Holland et al., 2013, p. 276), and that efficacy of the SRS depends on how successfully the instructor uses the poll results to advance students’ learning and understanding of cross-cultural issues (Salemi, 2009).

**SRS anonymity.** The anonymity of the SRS has received recent, albeit limited attention. Heaslip et al. (2014) found that students value the anonymity of the SRS when content polling is used because they are not exposed to the class when they log incorrect answers. Therefore, students do not risk embarrassment and are more willing to participate in the lectures (Heaslip et al., 2014). Sprague and Dahl (2010) found that in introductory courses, “the anonymity and security [that the SRS] provides students, makes it an excellent tool for challenging students with advanced material and concepts” (p. 101). Holland et al. (2013) explored the impact of the SRS’s anonymity in a comparative case study on two collegiate-level diversity courses, yet findings were mixed. Some students (28%) valued the anonymity of the SRS when responding to sensitive or controversial questions, as they were able to avoid judgment or confrontation. However, other students (15%) criticized the anonymity of the SRS because they did not have to defend or explain their opinions. The authors concluded, “that the value of the anonymity feature is contested in the diversity setting” (Holland et al., 2013, p. 288) and called for additional research. The present study addresses this call by exploring the potential impact of an SRS’s anonymity on students’ learning experiences in cross-cultural large lecture courses.

**Method**

**Research Setting and Description of the Technology**

This study was conducted in a large lecture course at a university in the Midwestern United States that consisted of 225 students and represented diverse enrollment (e.g., major, year in school). The three-credit course, Introduction to Fashion and Culture, fulfills the university’s cross-cultural requirement and is also a major requirement for students in the retail merchandising program. Course content included a focused exploration of the role of dress in shaping societal and cultural norms and was disseminated via two 75-minute class sessions per week over the 16-week spring semester. The course was held in a traditional lecture theater that
was equipped with Wi-Fi and instructional support technology (i.e., dual projection screens, audiovisual equipment). Instruction was primarily lecture-based with media content (e.g., video clips), instructor commentary, and the SRS supporting the PowerPoint presentations.

The instructor, a 36-year old Caucasian female, favored a pedagogical approach similar to Holland et al. (2013) which seeks to “avoid privileging one point of view, to encourage critical thinking and the development of authentic opinions, and, ultimately, to promote respect for the opinions of those with whom students disagree” (p. 279). The instructor introduced the SRS, Top Hat, on the first day of class and confirmed that students understood how to use the technology. Top Hat offers a classroom experience that is seamlessly integrated with students’ devices (i.e., laptops, tablets, cell phones, mobile apps). It was selected over other available SRS programs due to its wide use by course instructors at the university where the study was conducted and because Top Hat’s seamless integration was perceived to be convenient for students. That is, students do not typically forget their personal devices as they might forget to bring a clicker to class.

Top Hat was employed during each class meeting to take student attendance and deploy two to three questions on course topics that counted toward students’ class participation scores. The sociocultural scope of the course increased the likelihood that students would perceive questions related to many topic areas (e.g., race, gender and sexuality, social class, religion) as sensitive in nature and/or contentious. However, Top Hat allowed students to respond to questions anonymously and automatically recorded participation points. Individual student responses were visible to the instructor, but only the collective poll results were shared with the class and discussed in order to create “teachable moments.”

According to a suggestion by Holland et al. (2013), opinion polling was used most often as it is more appropriate to instruction in a diversity course than content polling. The following example demonstrates a typical opinion question posed by the instructor. In order to facilitate a lecture on cultural authentication, students were asked to respond to the following question: *Do you believe it is acceptable to adopt ethnic styles for fashion purposes?* The answer set included the following choices: (a) yes, (b) no, (c) unsure, and (d) depends on the ethnic style or item being adopted.

Background polling via the SRS was also utilized to explore students’ familiarity with and opinions about course topics, both before and after the lectures. This allowed the instructor to gauge any changes in students’ understanding and/or opinions that occurred as a result of course instruction. The following example demonstrates a typical “before and after” background question posed by the instructor.

In order to facilitate a lecture and informational video segment on the counterfeiting industry, students were asked to respond to a question (see Figure 1) about whether they would consider purchasing counterfeit merchandise. Following the lecture and video, students responded to the
question for a second time (see Figure 2). The reported change in students’ inclination to purchase counterfeit merchandise likely occurred due to the increase in knowledge that resulted from the lecture and informational video.

**Figure 1. Student Responses to a Top Hat Question Posed before Instructional Content was Disseminated**

Respond to the following statement: I would consider purchasing counterfeit merchandise (i.e., handbags, perfume, electronics, footwear, watches, etc.) if I saw something I liked being sold on the street or in a street market.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<td>9%</td>
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*N = 212

**Figure 2. Student Responses to a Top Hat Question Posed after Instructional Content was Disseminated**

After hearing today's lecture and seeing the video, respond to the following statement: I would consider purchasing counterfeit merchandise (i.e., handbags, perfume, electronics, footwear, watches, etc.) if I saw something I liked being sold on the street or in a street market.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
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*N = 212

**Sample and Data Collection**

Students in the Introduction to Fashion and Culture course comprised the convenience sample for the study. Data collection occurred during the final week of the spring semester via an online survey (i.e., Qualtrics). Students accessed the survey through a link in an email that was sent out to the class by the researchers, one of whom was the course instructor. The survey landing page contained an IRB-approved explanation of the study indicating that participation was voluntary and responses were anonymous, that there were no points associated with completing the survey, and stated that students’ submission of the completed survey implied their consent.

The survey instrument utilized both qualitative and quantitative items. Participants first responded to five open-ended questions that prompted them to write about their perceptions of classroom climate and the instructor’s teaching style, the features of Top Hat (i.e., anonymous, engagement tool), and whether they believed that using Top Hat impacted their achievement of course learning objectives. The questions were developed according to recommendations for future research by Holland et al. (2013) in order to probe more deeply into student perceptions of SRS use in a diversity course.
Students then responded to ten demographic items and twelve 5-point Likert scale questions, ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The two-part approach was employed to first allow students to convey their experiences with limited prompting from the questionnaire items (Holland et al., 2013). Although open-ended questions and well-designed closed-ended questions can produce the same results, open-ended questions can be especially beneficial for gleaning additional insight into nascent research areas (Schuman, 2008). Similar to Beard et al. (2013), “content validity was established by the subjective judgment of [two] expert reviewers who studied and utilized the SRS in the classroom” (p. 137). Because one of the researchers was also the instructor, data were not analyzed until after the culmination of the course.

**Results and Discussion**

**Closed-Ended Questions**

Data from the closed-ended questions were analyzed using the Statistical Package for the Social Sciences (SPSS) Version 22. Survey completion was voluntary, and 171 out of the 225 enrolled students (76%) responded. The sample was largely female (n = 139) and Caucasian (n = 139). Additional races reported by participants included African American (n = 10), Asian or Asian American (n = 17), and Mixed Race (n = 2). Three students (n = 3) identified as Hispanic or Latino. Many students (n = 140) also indicated that they were religious. There were 123 underclassmen and 48 upperclassmen in the sample with students’ ages ranging from 18 (n = 36) to 24 (n = 1). In order to conduct statistical analysis using the Mann-Whitney test, respondents were grouped into two categories for race (i.e., Caucasian, non-Caucasian), religion (i.e., religious, not religious), and age (i.e., 18-20, 21-24). The sample included students in the retail merchandising major (n = 28) for whom the course filled a university and a program requirement but was widely represented (n = 143) by students from various majors across the university. The majority of students (n = 154) were born in the United States and cited English (n = 154) as their first language.

Closed-ended questions were divided into three categories: classroom engagement, anonymity, and cross-cultural learning outcomes (see Table 1). Survey results revealed that for the majority of students, the use of Top Hat increased engagement in the large lecture classroom. Many respondents agreed or strongly agreed that Top Hat was important to their level of engagement with course content (78.4%), using Top Hat increased their feelings of connectedness with other students in the class (67.2%), and they enjoyed viewing the class poll results (77.8%). Students also valued the anonymity feature of Top Hat when responding to questions of a personal or sensitive nature (i.e., religion, politics; 67.9%). Although students reported that Top Hat’s anonymity compelled them to answer questions more honestly (88.8%), the lower percentage of agreement for increased comfort (54.9%) suggested there is still a level of discomfort associated with exploring sensitive or divisive cross-cultural issues, even when the mode of exploration is anonymous. Regarding cross-cultural learning outcomes, many participants agreed or strongly
agreed that viewing the poll results increased their awareness of the cultural diversity (67.8%) and diverging views (64.3%) within the class. Results also suggested that Top Hat use prompted students to reflect on (64.3%) and think critically (59.7%) about their positions on cross-cultural issues. Finally, many students indicated that engaging with the class through Top Hat (60.3%) and comparing their responses to those of their peers (59.7%) contributed to their cross-cultural learning in the Introduction to Fashion and Culture course.

Table 1. Student Perceptions of Top Hat Use and its Impact on Classroom Engagement, Anonymity, and Cross-Cultural Learning Outcomes

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<td><strong>Classroom Engagement</strong></td>
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<tr>
<td>1. Using Top Hat contributed</td>
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<td>to my level of engagement</td>
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<td>with the course content</td>
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<td>2. Using Top Hat made me</td>
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<td>feel connected to my peers.</td>
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<td>3. I enjoyed viewing the</td>
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<td>reports of the class’s Top</td>
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<td><strong>Anonymity</strong></td>
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<td>4. The anonymity of Top Hat</td>
<td>4.1</td>
</tr>
<tr>
<td>is important to me when</td>
<td></td>
</tr>
<tr>
<td>responding to questions of</td>
<td></td>
</tr>
<tr>
<td>a personal/sensitive nature</td>
<td></td>
</tr>
<tr>
<td>(i.e., religion, politics,</td>
<td></td>
</tr>
<tr>
<td>etc.).</td>
<td></td>
</tr>
<tr>
<td>5. I answer sensitive</td>
<td>1.2</td>
</tr>
<tr>
<td>questions more honestly</td>
<td></td>
</tr>
<tr>
<td>because Top Hat is anonymous.</td>
<td></td>
</tr>
<tr>
<td>6. The anonymity of Top Hat</td>
<td>6.4</td>
</tr>
<tr>
<td>makes me more comfortable</td>
<td></td>
</tr>
<tr>
<td>answering sensitive</td>
<td></td>
</tr>
<tr>
<td>questions.</td>
<td></td>
</tr>
<tr>
<td><strong>Cross-Cultural Learning</strong></td>
<td></td>
</tr>
<tr>
<td>7. Using Top Hat increased</td>
<td>4.7</td>
</tr>
<tr>
<td>my awareness of the cultural</td>
<td></td>
</tr>
<tr>
<td>diversity of the class.</td>
<td></td>
</tr>
<tr>
<td>8. Using Top Hat increased</td>
<td>3.5</td>
</tr>
<tr>
<td>my awareness of the diverging</td>
<td></td>
</tr>
<tr>
<td>viewpoints within the class.</td>
<td></td>
</tr>
<tr>
<td>9. Top Hat prompted me to</td>
<td>4.1</td>
</tr>
<tr>
<td>reflect on my position on</td>
<td></td>
</tr>
<tr>
<td>cross-cultural issues.</td>
<td></td>
</tr>
<tr>
<td>10. Top Hat prompted me to</td>
<td>4.1</td>
</tr>
<tr>
<td>think critically about my</td>
<td></td>
</tr>
<tr>
<td>position on cross-cultural</td>
<td></td>
</tr>
<tr>
<td>issues.</td>
<td></td>
</tr>
<tr>
<td>11. Engaging with the class</td>
<td>4.7</td>
</tr>
<tr>
<td>through Top Hat contributed</td>
<td></td>
</tr>
<tr>
<td>to my cross-cultural learning.</td>
<td></td>
</tr>
<tr>
<td>12. Comparing my responses</td>
<td>4.1</td>
</tr>
<tr>
<td>with the responses of my</td>
<td></td>
</tr>
<tr>
<td>peers contributed to my cross-</td>
<td></td>
</tr>
<tr>
<td>cultural learning.</td>
<td></td>
</tr>
</tbody>
</table>

Note: SD = Strongly Disagree; D = Disagree; N = Neither Agree Nor Disagree; A = Agree; SA = Strongly Agree.

Allen and Seaman (2007) suggest that the “analysis of Likert scalar data should not involve parametric statistics but should rely on the ordinal nature of the data” (para. 21). Further, the
nonparametric equivalent to the $t$-test, the Mann-Whitney $U$, is statistically more powerful than the $t$-test when the sample is not normally distributed (De Winter & Dodou, 2010). To that end, the Mann-Whitney $U$ test was employed to compare differences in classroom engagement, anonymity, cross-cultural learning (i.e., ordinal variables) for the two values of each demographic (i.e., categorical, independent) variable. The Shapiro-Wilk Test of Normality was performed, and the results confirmed that groups significantly deviated from a normal distribution ($p < .05$), an assumption of the Mann-Whitney test (Field, 2000). The nonparametric test for homogeneity of variance was then conducted using rank scores for the sample and mean ranks for each group in order to calculate absolute deviation scores. Results indicated that the assumption of homogeneity of variance was retained ($p > .05$). Therefore, the distribution of scores for both groups of each independent variable is assumed to have the same shape, an assumption of the Mann-Whitney test (Field, 2000). The statistically significant results from the Mann-Whitney $U$ analysis of the demographic variables are presented in Table 2.

With respect to gender, the Mann-Whitney $U$ test indicated that females believed that engaging with the class through Top Hat contributed to their cross-cultural learning more so than males. Females also believed that Top Hat increased their awareness of the diverging viewpoints of the class more so than males. For the demographic variable, ethnicity, Caucasian respondents reported feeling more connected to their peers as a result of Top Hat use than non-Caucasian respondents. Caucasian respondents also valued Top Hat’s anonymity when answering sensitive questions more so than non-Caucasian respondents. Caucasian respondents believed that engaging with the class through Top Hat contributed to their cross-cultural learning more so than non-Caucasian respondents. Finally, Caucasian respondents believed that comparing their responses with their peers’ responses contributed to their cross-cultural learning more so than non-Caucasian respondents. Students whose first language was English valued Top Hat’s anonymity when answering sensitive questions more than the English as a second language (ESL) students. Top Hat’s anonymity also had more of an impact on the propensity to log honest answers for the native speakers than it did for the ESL students. Students whose first language was English believed that engaging with the class through Top Hat contributed to their cross-cultural learning more so than the ESL students. The Mann-Whitney test indicated that Top Hat’s anonymity was more important when answering sensitive questions for students that were born in the U.S. than for students that were not born in the U.S. Students born in the U.S. also believed that Top Hat’s anonymity impacted the likelihood that they would answer sensitive questions honestly more so than the non-U.S.-born students. Engaging with the class through Top Hat contributed to cross-cultural learning for U.S.-born students more than for non-U.S.-born students.
Table 2. Statistically Significant Results from Mann-Whitney U Analysis of Demographic Variables

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Effect</th>
<th>Effect Level</th>
<th>n</th>
<th>Median (IQR)</th>
<th>Mann-Whitney U</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>More Connected to Peers b/c of Top Hat</td>
<td>Ethnicity</td>
<td>139</td>
<td>4.00 (3.00, 5.00)</td>
<td>1749.50</td>
<td>0.049</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Caucasian</td>
<td>32</td>
<td>3.50 (3.00, 5.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anonymity</td>
<td>Value Top Hat’s Anonymity when Responding to Personal/Sensitive Questions</td>
<td>Ethnicity</td>
<td>139</td>
<td>4.00 (3.00, 5.00)</td>
<td>1220.50</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Caucasian</td>
<td>32</td>
<td>3.00 (3.00, 5.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Language</td>
<td>Native English</td>
<td>154</td>
<td>4.00 (3.00, 5.00)</td>
<td>774.50</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ESL</td>
<td>17</td>
<td>3.00 (3.00, 5.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Birth Country</td>
<td>U.S.</td>
<td>154</td>
<td>4.00 (3.00, 5.00)</td>
<td>648.00</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outside U.S.</td>
<td>17</td>
<td>3.00 (3.00, 5.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Answer Sensitive Questions More Honestly b/c Top Hat’s Anonymous</td>
<td>Language</td>
<td>154</td>
<td>5.00 (4.00, 5.00)</td>
<td>964.50</td>
<td>0.048</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Native English</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ESL</td>
<td>17</td>
<td>4.00 (4.00, 5.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Birth Country</td>
<td>U.S.</td>
<td>154</td>
<td>5.00 (4.00, 5.00)</td>
<td>888.50</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outside U.S.</td>
<td>17</td>
<td>4.00 (4.00, 5.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More Awareness of Diverging Viewpoints b/c of Top Hat</td>
<td>Gender</td>
<td>139</td>
<td>4.00 (3.00, 4.00)</td>
<td>1648.50</td>
<td>0.016</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>32</td>
<td>3.00 (3.00, 4.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>Female</td>
<td>139</td>
<td>4.00 (3.00, 4.00)</td>
<td>1712.50</td>
<td>0.033</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>32</td>
<td>3.50 (3.00, 4.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-Cultural Learning through Top Hat Engagement</td>
<td>Ethnicity</td>
<td>Caucasian</td>
<td>154</td>
<td>4.00 (3.00, 4.00)</td>
<td>1407.50</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Caucasian</td>
<td>17</td>
<td>3.00 (3.00, 4.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Language</td>
<td>Native English</td>
<td>154</td>
<td>4.00 (3.00, 4.00)</td>
<td>891.50</td>
<td>0.023</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ESL</td>
<td>17</td>
<td>3.00 (3.00, 4.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Birth Country</td>
<td>U.S.</td>
<td>154</td>
<td>4.00 (3.00, 4.00)</td>
<td>861.50</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outside U.S.</td>
<td>17</td>
<td>3.00 (3.00, 4.00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-Cultural Learning through Response Comparisons</td>
<td>Ethnicity</td>
<td>Caucasian</td>
<td>139</td>
<td>4.00 (3.00, 4.00)</td>
<td>1705.00</td>
<td>0.030</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Caucasian</td>
<td>32</td>
<td>3.50 (3.00, 4.00)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The researchers identified a few plausible explanations for these findings. Regarding ethnicity, the statistically significant differences between Caucasians and non-Caucasians on measures of classroom engagement, anonymity, and cross-cultural learning may mean that Caucasian students in the class had less prior exposure to cross-cultural issues than non-Caucasian students, and thus more strongly valued the features of Top Hat as cross-cultural topics were explored. This explanation also supports the statistically significant differences that were evident between groups on language (i.e., English first language, ESL) and birth (i.e., non-U.S.-born, U.S.-born). Students who were born outside the U.S. and whose first language was not English would arguably enter a diversity course with more of an awareness of cross-cultural issues than students that were born in the U.S. and whose first language was English. This could explain why ESL and non-U.S.-born students reported lower levels of agreement about the value of Top Hat in aiding their achievement of course objectives; they entered the course with higher levels of cross-cultural awareness.

No statistically significant difference between groups was found for religion (i.e., religious, not religious), age (i.e., 18-20, 21-24), major (i.e., retail merchandising, other), or rank (i.e., upperclassmen, underclassmen) on the measures of classroom engagement, anonymity, or cross-cultural learning. This finding suggests that an SRS may be a useful pedagogical tool in large lecture diversity courses regardless of the enrolled students’ year in school or major.

**Open-Ended Questions**

The open-ended questions were analyzed using Ethnograph 6.0 qualitative data analysis software. Data were independently coded by two researchers using the constant comparative method (Strauss & Corbin, 1990; Creswell, 2007). The process of open, axial, and selective coding was followed by further discussion and negotiation of meanings between the two coders. The results revealed three emergent themes (i.e., anonymous answering, classroom climate, learning outcomes) related to Top Hat use.

**Anonymous answering.** Three subthemes emerged related to anonymous answering: honesty and trustworthiness, fear and anxiety, and conflict avoidance.

*Honesty and trustworthiness.* This subtheme was two-fold. Respondents indicated that Top Hat was a platform through which they could express their honest opinions on course topics (e.g., “it was a good way to put your honest opinion in”) and that they believed their peers also answered Top Hat questions honestly (e.g., “I believe I learned a lot about it because of the anonymity everyone was truthful”). That is, students trusted that polling result reports were actually representative of the class’s beliefs (e.g., “people are more honest and you get a better perspective on certain situations”). There was even an acknowledgment by many students that truthful responses contributed to the class learning experience (e.g., “it gave a chance for the instructor to get honest feedback to then better teach the course”).
Fear and anxiety. This subtheme provides support for anonymous answering mitigating some of the fears and anxieties that students might encounter in a diversity course that could hinder their active participation, and thus their learning. For many respondents, Top Hat’s anonymity meant that they did not have to be concerned about being judged based on their responses (e.g., “it allowed me to say what I wanted without being afraid of being judged”) or worried that they may be singled out by the instructor to answer a question (e.g., “you wouldn’t be judged for your answers or randomly called on”). Interestingly, some of the “fear words” used by students related to a concern that they did not have the “right” answer to a question, despite the questions being opinion-based (e.g., “people couldn’t see if I had the wrong answers” and “my answers were stupid”). In situations where students have not fully considered or formed opinions on topic areas, there is a propensity for bandwagon effect in which students just agree with the majority. With Top Hat, students could not scan the classroom for nodding heads to determine what the “majority” was, but instead had to consider the questions and register their individual answers. Only after the instructor opened the poll results could students see how their peers responded.

Conflict avoidance. Holland et al. (2013) speculated about “whether anonymity stalls the cognitive process of genuine opinion formation” (Holland et al., 2013, p. 287), stating that in order for students to truly form authentic opinions, they must not only understand why the opinions are held but must also be able to defend the opinions. This subtheme provides support that students valued Top Hat’s anonymity due to concerns that other students would disagree with their responses (e.g., “I don’t want people knowing my opinion in case they disagree”), suggesting that they may not have been prepared to defend their opinions. Conflict avoidance was also evident among students whose comments suggested that their views were often in opposition to the majority. It is clear that some students valued Top Hat’s anonymity because they could learn without engaging in debate over divisive issues. However, it is also plausible that students in the introductory course were being exposed to many of the cross-cultural topics for the first time and had not yet fully considered and formed opinions on these topics, hence the conflict avoidance. Once the students explore the issues further in upper-level courses and in their personal lives, they may feel more comfortable engaging in debate and discussion about their views.

Classroom climate. Two subthemes emerged related to classroom climate: active participation and instructor approach.

Active participation. This subtheme suggests that students valued Top Hat because it made the class more interactive and allowed them to engage with their peers in the large lecture hall. For example, one respondent stated that Top Hat “made it easier for such a large class to interact with each other.” Another respondent believed that using Top Hat “got everyone involved which is hard in a big lecture class” and that “everyone was able to voice their own
Respondents also suggested that Top Hat was useful because it gave all students an equal opportunity to participate (e.g., “it made class very simple while allowing people to answer who may not otherwise” and “I feel like it made everyone feel equal”). It is also noteworthy that in their responses, students often referred to the Top Hat questions and the instructor’s subsequent commentary as “class discussions” although the instructor was the only one who actually did any speaking (e.g., “got everyone involved and active in the discussions”). This finding provides further support that Top Hat can successfully foster a level of interactivity and engagement in large lecture courses where full class discussions are not a feasible option.

Students also enjoyed seeing their peers’ responses (e.g., “I thought that it was really awesome to be able to see what your classmates wrote and thought”) and believed that this feature of Top Hat supported their cross-cultural learning (e.g., “I did learn from comparing my responses to others in the class”). Respondents also believed that active engagement via Top Hat helped them learn the course material and contributed to their success in the course (e.g., “it helped because it kept us active in our learning. We were able to give opinions and it kept us interested” and “It contributed to the success because it allowed us to participate and learn a lot about the course through answering questions”).

**Instructor approach.** A range of research discusses the relationship between the instructor’s pedagogical approach and cross-cultural learning. Instructors that cultivate an open classroom environment and are perceived by students to be knowledgeable and non-biased in their discussion of cross-cultural issues seem to be the most effectual leaders of diversity courses (Brown, 2004; Holland, 2006; Holland et al., 2013). This subtheme provides support for the idea that instructional support tools, such as Top Hat, are most useful when a credible and open instructor employs them to facilitate student learning and engagement (Holland et al., 2013). For example, one student stated that the instructor “was very open and non-judgmental of every culture and subgroup we talked about” and that “she made us challenge our current thoughts about fashion and why we dress the way we do (our religion or social atmosphere, etc.).” Many students also discussed the learning environment that the instructor cultivated (e.g., “very calm and non-judgmental environment”) and were complimentary of her sensitive approach to challenging topics. One student stated that the instructor “offered questions that were worded so no one would get offended…and got us really thinking about the cultural information,” while another student believed that the instructor “was non-biased and was able to be sensitive to all different cultures and varieties of people.”

**Learning outcomes.** Holland (2006) hypothesized that student resentment of diversity courses may be higher when they are “told” through course materials (e.g., course objectives, lectures, instructor discussions) that they need to “change” their views on cross-cultural issues. Instead, prompting students to “interrogate their beliefs and exchange ideas in an environment that supports multiple and varied views” (Holland, 2006, p. 199) may be a more effective pedagogical approach to facilitating diversity learning. Likewise, the objectives for the Introduction to Fashion and Culture course delineate a step-by-step process (i.e., awareness→
Engagement in Cross-Cultural Large Lectures

reflection \rightarrow \text{critical analysis} \rightarrow \text{cross-cultural learning} \) that does not cite a change in beliefs as a learning outcome. Instead, students are encouraged to commit to maintaining a level of cross-cultural awareness after course completion in order to prepare themselves for global citizenship.

Findings from qualitative data analysis suggest that study participants believed that Top Hat use contributed to their achievement of course objectives. For example, one student stated that Top Hat “made the course more successful because more people participated and there for payed [sic] attention” and that Top Hat “heightened the awareness of cross-cultural perspectives because it showed the diversity between the class.” Another respondent stated the following: “Some of the questions directly questioned our beliefs which made the material more useful/applicable to each individual.”

**Conclusions and Recommendations**

This study contributes to the growing body of pedagogical research on improving the student learning environment in cross-cultural large lecture courses through the use of student response systems (SRS) and provides a foundation for further research exploration. Results from data analysis on the open- and closed-ended questions provide initial support for using an SRS to increase student engagement and comfort in exploring the cross-cultural subject matter. The SRS’s anonymity is beneficial for eliciting honest responses on sensitive course content which leads to more relevant instruction from the professor.

Additional research is needed to further explore the role of the SRS in facilitating achievement of course objectives (i.e., diversity learning) in cross-cultural, large lecture courses. However, a review of the extant literature and the findings from the present study support SRS programs as useful pedagogical tools only to the extent that their advantages (e.g., cultivating engagement in large lectures, highlighting the diversity of student opinions and beliefs) are leveraged through the instructor’s pedagogical style to facilitate an open classroom environment in which thoughtful reflection and critical analysis of cross-cultural issues can occur (Holland et al., 2013; Trees & Jackson, 2007). It is also important to acknowledge that each class section has a distinct “culture” (i.e., composition, student learning styles, individually held opinions and beliefs) that shapes the course experience. Approaches that are well received and facilitate learning in one class might not be as successful under different conditions. However, an SRS allows instructors to continually probe their classes and adapt the pedagogical approach as necessary to maximize students’ cross-cultural learning.

**References**

Engagement in Cross-Cultural Large Lectures


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Targeting Extension Programs to Opinion Leaders Guiding Genetic Modification Discussions

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Despite communication efforts developed to educate the public about genetic modification (GM) science designed to ensure consumers are making educated purchasing decisions, most consumers do not seek out information about GM science and make emotional purchasing decisions. In addition, GM supporters and opponents can be very vocal about their opinions, having an impact on those within their social realms of influence. Using opinion leadership theory, this study sought to identify GM opinion leaders within the U.S. who consider themselves to be outspoken and a source of information for GM science. An online survey was deployed with the purpose of identifying GM opinion leaders, determining their views on GM science, identifying where they go for information, and determining how they want to learn so that Extension professionals can better serve their needs. The findings imply GM science opinion leaders are younger, white or African American men, with a high average family household income, that are well educated. The GM science opinion leaders have a slightly negative attitude toward GM and want to learn about GM science from universities researching GM science and organizations in support of GM science through online mediums. Recommendations are offered for how Extension professionals can reach this audience.

*Keywords*: genetic modification, GM science, consumer education, Extension education, opinion leaders, communication

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Introduction

Genetic modification (GM) science, or transgenic technology, has made a tremendous impact on agriculture over the past 20 years (Adenle, Alhassan, & Solomon, 2014). Plants and animals used for agricultural purposes have been subject to selective breeding and genetic manipulation for centuries to achieve desirable outcomes; with recent advances in technology, the same manipulation can be accomplished in a few months as opposed to decades (Napier, Tucker, Henry, & Whaley, 2004). GM science has helped develop disease and/or pest-resistant crops and crops that are more adaptable to changing physical environmental conditions such as drought. This adaptation results in higher yields and crops that can solve human problems, such as golden rice, which can decrease rates of childhood blindness in developing countries by increasing the amount of Vitamin A in the rice (Napier et al., 2004). Crops developed by GM science first became commercially available in the United States (U.S.) around the mid-1990s and were adopted by farmers (Adenle et al., 2014; Cowan, 2011). In 2013, U.S. farmers had planted 170 million acres of GM crops (Fernandez-Cornejo, Wechsler, Livingston, & Mitchell, 2014) and 70% of processed foods sold in grocery stores contained GM ingredients (Chrispeels, 2014). The agricultural progress made using GM science has the potential to assist in feeding the world’s growing population, especially in countries where conditions are not suitable for agricultural production (Mahgoub, 2015).

Scientific evidence shows the use of GM science in crop production is safe for consumers as it relates to food safety (FAO, 2004; Mahgoub, 2015; Nicolia, Manzo, Veronesi, & Rosellini, 2014). However, despite extensive research studies presenting favorable information about GM science, many consumers are skeptical (Brown, Kiernan, Smith, & Hughes, 2003; Chassy, 2007; Lemaux, 2008; Zilberman, Kaplan, Kim, & Waterfield, 2013). Additionally, anti-GM food arguments are prevalent (Mahgoub, 2015). Consensus has not been achieved among U.S. consumers on the societal benefits of GM food, despite agreement that GM science has revolutionized agricultural production (Napier et al., 2004).

Consumers, in general, do not actively seek out information about GM science (Mahgoub, 2015). However, previous research has shown consumers will seek information about GM food when grocery shopping to reduce risk and make purchasing decisions (Zhang, Tan, Xu, & Tan, 2012). Typically, the sources individuals will access for information are those that gratify their needs and support their current views (Herzog, 1954). The limited exposure to information about GM science as well as knowledge confirmed by sources consistent with an individual’s beliefs can amplify doubt and lead to consumer distrust of GM science (Lusk, 2011). Brossard and Nisbet (2007) suggested that most citizens lack the capacity to be fully knowledgeable about an issue and depend on sources they trust and the media to provide information when forming opinions. Opinion leadership is defined by Rogers (2003) as “the degree to which an individual is able to influence other individuals’ attitudes or overt behavior informally in a desired way with relative frequency” (p. 27). Opinion leaders are central to the decision-making process within their
circles of influence and can potentially facilitate discussions about GM food (Rogers, 2003) so consumers can make educated purchasing decisions. Identifying GM science opinion leaders could assist Extension, communication, and education initiatives by ensuring initiatives are targeted at those having the largest impact on the GM discussion.

**Theoretical Framework**

Opinion leadership theory (Katz & Lazarsfeld, 1955) guided the present study. The theory indicates opinion leaders are most likely to be the first to participate in behaviors that could potentially influence their social networks (Katz & Lazarsfeld, 1955). Opinion leadership theory suggests that these individuals are more involved with an issue, aggressively search for information, and as a result, frequently discuss the issue. Opinion leaders consider themselves experts, more persuasive, who are able to convince others to adopt their views (Katz & Lazarsfeld, 1955). Opinion leaders also tend to be early adopters of new information or technologies and are most likely to experiment with innovations and new ideas (Rogers, 2003).

There are several attributes which are common among opinion leaders: they are found at every social level, in both sexes, all professions, all social classes, and all age groups (Katz & Lazarsfeld, 1955). In general, opinion leaders tend to have a higher income level and be more educated than the general public (Keller & Berry, 2003) providing them access to larger amounts of information and allowing them the opportunity to be more innovative in their purchasing behaviors. Opinion leaders tend to be more involved in social activities and organizations and hold positions in their personal networks (Rogers, 2003). They are considered to be experts in their field, an informal recognition by friends, colleagues, and family. Opinion leaders are also more exposed to mass media than nonleaders and are more interested, involved, and updated in the field in which they are influential. Finally, opinion leaders are well aware that others seek them out for information and influence (Weimann, Tustin, van Vuuren, & Joubert, 2007). These attributes lead others to see opinion leaders as effective communicators to relay the “personal and social relevance of a problem or issue while fitting information to the existing values, mental models, experience, and interests” of a consumer (Nisbet & Markowitz, 2014, p. 1). Literature has extensively examined the role of opinion leadership in disseminating information to a broad audience about agricultural and natural resource topics (Katz & Lazarsfeld, 1955; Lamm, Lamm, & Carter, 2015; Lamm, Rumble, Carter, & Lamm, 2016; Rogers, 2003). However, little has been done to examine GM science opinion leaders and how to access them so they can be leveraged in the distribution of research-based information related to the use of GM science.

**Purpose and Objectives**

The purpose of this study was to determine who GM science opinion leaders are, what they believe, and where they get their information to better serve them through targeted Extension programming. The study was driven by the following research objectives:
1) Identify the demographic characteristics of GM science opinion leaders;
2) Determine the attitudes GM science opinion leaders express toward GM science;
3) Identify the sources GM science opinion leaders prefer when learning about GM science; and
4) Identify GM science opinion leaders’ preferred modes of learning regarding GM science.

Methods

The research presented here was part of a larger study designed to capture public opinion of GM science, GM food, and the possibility of using GM science as a solution to citrus greening. Only four sections of the instrument were germane to the research objectives of this study: (a) opinion leadership, (b) attitude toward GM science, (c) preferred sources of information, and (d) preferred learning channels associated with GM science. Before being asked any questions about GM science, the respondents were given the following definition for GM science: “GM science is used to genetically modify organisms, such as plants, animals, insects, etc., by introducing specific changes into their DNA. These techniques allow for the introduction of new traits as well as greater expression of beneficial natural traits.”

To reach the objectives of this study, an online survey was distributed to residents of the U.S. who were age 18 years and older. Using nonprobability opt-in procedures, potential respondents were sent a survey link by Qualtrics, a public opinion survey research company. Nonprobability sampling is a very common sampling method for individuals involved with public opinion research to gauge population estimates (Baker et al., 2013). Nonprobability samples are known to have certain limitations with selection, exclusion, and nonparticipation biases (Baker et al., 2013). To overcome these potential limitations, post-stratification weighting methods were used (Kalton & Flores-Cervantes, 2003).

In total, 1,549 U.S. residents were contacted. A 67.5% participation rate was obtained ($N = 1,047$). To ensure the respondents were representative of the nation per the 2010 U.S. Census, the data were weighted to balance their demographic characteristics (race/ethnicity and gender) to ensure they were reflective of the U.S. population (Baker et al., 2013). Weighting is a common procedure to balance for selection, exclusion, and nonparticipation biases in nonprobability sample sections (Baker et al., 2013).

To identify opinion leaders of GM science, an opinion leadership scale developed by Childers (1986) was adapted. Respondents were given six statements and asked to select where their attitude most closely aligned on a five-point semantic differential scale between two phrases. A score of one indicated a lower level of opinion leadership of GM science and was represented by phrases such as told no one, never, your friends tell you about issues including new developments in GM science, give very little information, not at all likely to be asked, and not used as a source of advice. A five indicated a stronger inclination for opinion leadership of GM and were represented by phrases such as told a number of people, very often, you tell your friends about
issues including new developments in GM science, give a great deal of information, very likely to be asked, and often used as a source of advice. Respondent responses to the six opinion leadership questions were averaged to create an overall opinion leadership index score of GM science. Reliability was calculated ex post facto resulting in a Cronbach α = .83.

Responses to the opinion leadership scale were then used to identify the opinion leaders among the respondents for this study. The overall opinion leadership mean score was converted into z scores. Respondents with a z score of one or more (indicating they were one standard deviation above the overall mean on the opinion leadership scale) were identified as opinion leaders. Opinion leaders represented 26% (n = 185) of the respondents.

Respondents were then presented with a question designed to capture their attitude toward GM science. They were asked to indicate where, between two sets of adjectives, their attitude lay on a five-point semantic differential scale. Eight sets of adjectives were presented. Those adjectives were bad/good, negative/positive, not beneficial/beneficial, unacceptable/acceptable, unnecessary/necessary, unimportant/important, not essential/essential, and trivial/crucial. Responses to the eight items were averaged to create an overall attitude mean score. Reliability was calculated ex post facto resulting in a Cronbach α = .97.

Respondents were then provided with a list of 12 possible learning opportunities and asked to select those they would be interested in using in the future. The list included visiting a website, watching a video, watching TV coverage, reading printed fact sheets, bulletins or brochures, getting trained for a regular volunteer position, attending a seminar or conference, attending a fair or festival, taking part in a one-time volunteer activity, attending a short course or workshop, looking at a demonstration or display, and reading a newspaper article or series.

Finally, respondents were asked to identify where they go to learn more information about GM science topics. Respondents were provided with a list of nine possible choices and asked to check all that apply. The list included universities researching GM science, organizations in support of GM science, companies using GM science, organizations in opposition of GM science, government organizations, news media, friends or family, colleagues, and other.

A collaboration of individuals from the University of Florida and Kansas State University served as an expert panel that ensured content and face validity of the survey instrument. They had experience with public opinion research, survey design, and GM science. The University of Florida’s Institutional Review Board approved the study before data collection. The instrument was pilot tested with 123 undergraduate students; reliability was confirmed. The instrument was then distributed nationally. Data were analyzed using SPSS® 22.0.
Results

Demographic Characteristics of GM Science Opinion Leaders

The demographic characteristics of the respondents qualifying as GM science opinion leaders are presented in Table 1. The majority were White (75%) with Black or African Americans also represented (20%). In addition, the Hispanic/Latino population was well represented (23%). GM science opinion leaders had a higher representation of male respondents than female, were well off financially, and over half of the opinion leader respondents held a 4-year college degree or a graduate or professional degree. Additionally, the opinion leaders were young with almost 70% reporting being between the ages of 20 and 39.

Table 1. Demographic Characteristics of GM Science Opinion Leaders (N = 185)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Overall (N = 1,047)</th>
<th>Opinion Leaders (n = 185)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>51.2</td>
<td>43.3</td>
</tr>
<tr>
<td>Male</td>
<td>48.8</td>
<td>56.7</td>
</tr>
<tr>
<td>Hispanic/Latino Ethnicity</td>
<td>14.2</td>
<td>23.2</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>.7</td>
<td>.9</td>
</tr>
<tr>
<td>Black or African American</td>
<td>11.6</td>
<td>20.3</td>
</tr>
<tr>
<td>Asian or Pacific Islander</td>
<td>5.0</td>
<td>2.5</td>
</tr>
<tr>
<td>White</td>
<td>66.9</td>
<td>75.2</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-19</td>
<td>3.9</td>
<td>0</td>
</tr>
<tr>
<td>20-29</td>
<td>12.2</td>
<td>30.9</td>
</tr>
<tr>
<td>30-39</td>
<td>17.1</td>
<td>38.7</td>
</tr>
<tr>
<td>40-49</td>
<td>18.6</td>
<td>14.0</td>
</tr>
<tr>
<td>50-59</td>
<td>17.9</td>
<td>9.8</td>
</tr>
<tr>
<td>60-69</td>
<td>12.5</td>
<td>4.8</td>
</tr>
<tr>
<td>70-79</td>
<td>7.1</td>
<td>1.9</td>
</tr>
<tr>
<td>80+</td>
<td>4.8</td>
<td>0</td>
</tr>
<tr>
<td>Household Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $25,000</td>
<td>18.9</td>
<td>3.7</td>
</tr>
<tr>
<td>$25,000 to $49,999</td>
<td>25.6</td>
<td>14.8</td>
</tr>
<tr>
<td>$50,000 to $74,999</td>
<td>20.1</td>
<td>16.8</td>
</tr>
<tr>
<td>$75,000 to $149,999</td>
<td>28.2</td>
<td>51.1</td>
</tr>
<tr>
<td>$150,000 to $249,999</td>
<td>5.1</td>
<td>11.7</td>
</tr>
<tr>
<td>$250,000 or more</td>
<td>2.0</td>
<td>1.8</td>
</tr>
</tbody>
</table>
Opinion Leaders Guiding Genetic Modification Discussions

Overall ($N = 1,047$) | Opinion Leaders ($n = 185$)
---|---
**Characteristic** | % | %
Education Level | | |
High school graduate (includes GED) | 14.6 | 7.9 |
Some college, no degree | 27.6 | 21.8 |
2-year college degree | 12.0 | 12.6 |
4-year college degree | 29.1 | 37.1 |
Graduate or professional degree | 16.0 | 20.7 |

**Attitudes GM Science Opinion Leaders Express Toward GM Science**

The GM science opinion leaders’ attitude toward GM science was identified through the use of a semantic differential scale where the respondents identified their attitude by selecting where, between two opposing adjectives, their attitude lay on eight items. The items were then averaged to create an overall attitudinal index where a response of five indicated a positive attitude toward GM science, and a response of one indicated a negative attitude toward GM science. The mean overall attitude of opinion leaders toward GM science was a 2.12 ($SD = 1.20$) on a five-point scale indicating a slightly negative average attitude toward GM science. Attitude towards GM science is known to be polarizing (Lusk, 2011), so the data were visualized across the scale to determine the level of diversity in attitudes towards GM science among opinion leaders. Figure 1 displays the distribution of the attitudes of opinion leaders where 74% expressed a negative attitude, and 15.7% expressed a positive attitude.

*Figure 1. Attitudes Expressed by GM Science Opinion Leaders*
Sources of Information GM Science Opinion Leaders Prefer

Respondents classified as GM science opinion leaders were asked to indicate the source or entity they would access to learn more about GM science (Table 2). Respondents had a preference for learning from universities researching GM science and organizations in support of GM science. They were less likely to go to their colleagues, friends, and family for information. They were more likely to prefer news media over government organizations.

Table 2. GM Science Opinion Leaders’ Preferred Sources of Information (n = 185)

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities researching GM science</td>
<td>60.2</td>
</tr>
<tr>
<td>Organizations in support of GM science</td>
<td>60.2</td>
</tr>
<tr>
<td>Companies using GM science</td>
<td>49.1</td>
</tr>
<tr>
<td>Organizations in opposition of GM science</td>
<td>48.6</td>
</tr>
<tr>
<td>News media</td>
<td>28.6</td>
</tr>
<tr>
<td>Government organizations</td>
<td>25.7</td>
</tr>
<tr>
<td>Friends or family</td>
<td>14.6</td>
</tr>
<tr>
<td>Colleagues</td>
<td>9.5</td>
</tr>
<tr>
<td>Other</td>
<td>4.1</td>
</tr>
</tbody>
</table>

GM Science Opinion Leaders’ Preferred Modes of Learning

Respondents classified as GM science opinion leaders were asked to indicate the types of learning opportunities they would most likely utilize to learn about GM science (Table 3). Respondents preferred easily accessed opportunities such as websites and reported a lower level of interest in learning opportunities that would require their attendance.

Table 3. GM Science Opinion Leaders Preferred Modes of Learning (n = 185)

<table>
<thead>
<tr>
<th>Learning Opportunity</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit a website</td>
<td>72.1</td>
</tr>
<tr>
<td>Read printed fact sheets, bulletins, or brochures</td>
<td>46.0</td>
</tr>
<tr>
<td>Watch TV coverage</td>
<td>44.3</td>
</tr>
<tr>
<td>Look at a demonstration or display</td>
<td>43.8</td>
</tr>
<tr>
<td>Attend a short course or workshop</td>
<td>39.0</td>
</tr>
<tr>
<td>Read a newspaper article or series</td>
<td>37.0</td>
</tr>
<tr>
<td>Attend a seminar or conference</td>
<td>35.7</td>
</tr>
<tr>
<td>Connect with others on social media</td>
<td>35.6</td>
</tr>
<tr>
<td>Attend a fair or festival</td>
<td>32.7</td>
</tr>
<tr>
<td>Face-to-face conversations</td>
<td>30.7</td>
</tr>
<tr>
<td>Take part in a one-time volunteer activity</td>
<td>30.4</td>
</tr>
<tr>
<td>Get trained for a regular volunteer position</td>
<td>30.0</td>
</tr>
<tr>
<td>Other</td>
<td>1.5</td>
</tr>
</tbody>
</table>
Conclusions

The results revealed GM science opinion leaders were most likely to be younger, white or African American males with a high average annual household income and high level of education. These findings were consistent with previous research conducted by Keller and Berry (2003) that found opinion leaders tend to have a higher income and be more educated than the general public. This is expected due to having access to more information and therefore being sought out as a source of knowledge.

The results also indicated the majority of GM science opinion leaders had a slightly negative attitude toward GM science. These findings support previous literature that has found skeptical attitudes among consumers regarding GM science and GM food (Chassy, 2007; Lemaux, 2008; Zilberman et al., 2013). Considering opinion leaders are known to be the most vocal about their opinions among their circles of influence (Rogers, 2003), the negative attitudes of GM science opinion leaders being stated and heard may be exacerbating the skeptical attitudes among consumers.

When asked about the sources they would access to learn more about GM science, the GM science opinion leaders indicated they would go to universities researching GM science and organizations in support of GM science before other sources. Since the GM science opinion leaders expressed a negative attitude toward GM science, these findings are contradictory to the long-held belief that individuals will go to sources to access information that gratify their needs and support their current views (Herzog, 1954). Perhaps GM science opinion leaders are open to thinking critically about the information they access and want more information readily available from sources they trust and see as cutting edge when it comes to GM.

The Internet, specifically visiting a website, was the way opinion leaders reported they would like to access information about GM science. Previous research has shown that consumers making decisions about purchasing GM food seek information from a variety of sources to reduce risk and make a better decision regarding their choices (Zhang et al., 2012). Given the vast amount of information that is readily available, the Internet is often seen as the best provider of information, despite the source.

Implications and Recommendations

The power of opinion leadership in disseminating information to a broad audience about agricultural and natural resource topics has been extensively identified in the literature (Katz & Lazarsfeld, 1955; Lamm et al., 2015, 2016; Rogers, 2003). Broadly speaking, this implies Extension professionals educating on any topic need to think about opinion leaders when targeting their educational initiatives since they have the potential of having the largest impact in distributing information. The findings presented here offer an opportunity to target a specific group of individuals having influence in the GM science conversation to increase the potential of
consumers making informed purchasing decisions. Demographically, the GM science opinion leaders that emerged were not those typically thought of when educating about food choices implying that Extension professionals discussing food safety and food security issues are not targeting the right audience. Extension professionals should consider engaging younger, male audiences with higher levels of education. Perhaps Extension professionals could partner with companies that employ young male professionals and offer free cooking demonstrations at lunch while discussing food safety, food security, and the science behind GM as a way to reach them where they work.

GM science opinion leaders reported relying on universities researching GM science and organizations in support of GM science as their primary sources of information. The GM science opinion leaders also reported going to a website to obtain information. Since universities are being accessed, Extension professionals need to make relevant, research-based information about GM science readily available and easy to find online. There have been multiple scientific studies discussing GM science (e.g., Nicolia et al. 2014; Panchin & Tuzhikov, 2016; Snell et al., 2012). The articles need to be more readily available to GM opinion leaders as they seek information in a way that is easy to understand and access. Perhaps scientific facts in journal articles could be transferred into short, bite-sized infographics that can be easily understood and shared on social media platforms, so external readers do not have to sift through scientific jargon, necessary for academic publishing, but rarely understood by a lay audience. Once online resources about GM science in a variety of formats are made available through university websites, it would be important to track how they are being accessed and by whom. This information would help determine if GM science opinion leaders are being reached by Extension efforts and what methods/platforms are most readily used.

Organizations in support of GM science were also found to be a source of information for GM science opinion leaders. Extension professionals should consider creating partnerships with these companies to develop ways to assist one another in transferring knowledge. Perhaps these organizations could reference the Extension resources suggested previously in their efforts to educate about GM science, further utilizing the materials being developed and delivered directly from the university.

To fully understand GM science opinion leaders, researchers should consider using a qualitative approach to further explore GM science opinion leaders’ attitudes toward GM science, the trust they hold in different sources and how they are sharing information about GM science. A focus group setting could allow socially constructed knowledge to emerge and provide a deeper understanding of their thinking and how they are sharing information (Stewart & Shamdasani, 1990). In addition, the focus groups could be used to test different ways of sharing information about GM science and how effective it is in catching their attention. For example, focus group participants could be presented with different forms of media, such as social media platforms, infographics, and journal articles, that all share the same information but in different ways and
then be asked questions about what they learned, if it influenced their attitudes, and how they would share the information with others.

The research presented here offers some practical recommendations and discussion points based on a national sample. However, it is recommended that Extension professionals and researchers interested in reaching GM science opinion leaders replicate the study at the state or local level. This would provide insight into whether or not GM science opinion leaders within their communities have the same attitudes toward GM science and are using the same sources and modes of learning as those representative of the U.S., broadly.

References


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4-H State Leadership Boards: Measuring Leadership Life Skills and Youth-Adult Relationships

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Louisiana State University and *LSU Agricultural Center*

This descriptive correlational study sought to measure the development of leadership life skills and the perceptions of youth-adult relationships by youth serving on the Louisiana 4-H State Leadership Boards. Members of the 2013-2014 Louisiana 4-H State Leadership Boards (N = 153) served as the population for the study. A total of 99 responses were collected yielding a response rate of 65%. Board members reported high levels of youth involvement, adult involvement, and youth-adult interaction. Based on the high levels of involvement and interaction, youth-adult partnerships were present on the Louisiana 4-H State Leadership Boards. Future research should be conducted to determine if there is a difference in youth who serve on the Louisiana 4-H State Leadership Boards and other 4-H members who do not serve on the boards. No statistically significant relationship existed between the development of leadership life skills and youth-adult partnerships. Future research should investigate the subject deeper to determine why the two variables had no significant relationship in this study.

*Keywords:* leadership life skills, youth-adult relationships, 4-H, state leadership board

**Introduction**

The 4-H program embraces positive youth development (PYD) principles to foster skills that encourage youth to become productive and engaged citizens (Lerner et al., 2005). PYD focuses on three broad developmental tasks that involve acquiring knowledge and skills in building relationships, becoming a productive citizen, and applying soft skills like communication, goal setting, and cooperation in an everyday context (Connell, Gambone, & Smith, 2000). The concept of youth “as stakeholders in their own development” has grown exponentially over the past 50 years, and collaborative efforts between adults and youth to implement programs and activities have evolved from simply youth input to youth-adult partnerships (Pittman, 2000).
Youth-Adult Partnerships

By definition, youth-adult partnerships involve youth and adults working collaboratively and continuously on issues of mutual interest (Zeldin, Christens, & Powers, 2013). One of the earliest models of youth-adult partnerships sought to describe how youth and adults worked together. The Continuum of Youth-Adult Relationships model has five levels that are independent and nonhierarchical (Jones & Perkins, 2004). The levels include (a) adult-centered leadership, (b) adult-led collaboration, (c) youth-adult partnership, (d) youth-led collaboration, (e) and youth-centered leadership. Each level explicates the degree of autonomy exercised by youth. At the lowest level, adult-centered leadership, youth have relatively low autonomy, while at a high level, youth-centered leadership, youth are very autonomous. True youth-adult partnerships, which involve shared decision making between youth and adults, are at the center of the continuum. The focus on shared decision making in youth-adult partnerships continues to be a strong thread in the research (Blanchet-Cohen & Brunson, 2014; Cater, Machtmes, & Fox, 2013; Zeldin et al., 2013; Zeldin, Krauss, Collura, Lucchesi, & Sulaiman, 2014).

Life Skills

Youth development organizations have focused on the life skills that youth gain by participating in programs (Seevers, Dormody, & Clason, 1995). Life skills are considered essential for youth to be productive citizens in today’s society (Boyd, Herring, & Briers, 1992). Research has shown that being involved in programs like 4-H or FFA increases the perceived gain of life skills (Ciocanel, Power, Eriksen, & Gillings, 2017; Ellsworth et al., 2017). Further, studies have recommended that youth participate beyond just community involvement to regional and state involvement also (Seevers & Dormody, 1994).

Leadership Life Skills

Early studies of leadership life skills development laid the groundwork for future studies with a focus on developing skills to make decisions and build relationships, to gain self-awareness, to perform well within a team, and to communicate well with others (Bruce, Boyd, & Dooley, 2004). Participation in programs like 4-H and FFA has served as an independent variable in many studies. The association between program participation and leadership life skill development is often significant and suggests that as program participation increases, leadership life skills increase (Miller & Bowen, 1993; Rutherford, Townsend, Briers, Cummins, & Conrad, 2002; Seevers & Dormody, 1994; Waguespack, 1988; Wingenbach & Kahler, 1997). Intensity of participation has also been positively linked with perceived leadership abilities (Rutherford et al., 2002), while positional leadership is another variable associated with higher perceived leadership abilities (Carter & Spotanski, 1989). More recent research has begun to probe how youth view leadership. One emerging theme centers around the perspective that youth leadership is less positional and more personal (Mortensen et al., 2014). This perspective suggests that youth recognize both formal and informal leadership roles as important.
Louisiana 4-H State Leadership Boards

Youth-adult partnerships are one avenue used by the Louisiana 4-H Youth Development program to promote the development of leadership life skills among the participants of six Louisiana 4-H State Leadership Boards. The Louisiana 4-H program emphasizes youth-adult partnerships as one strategy for increasing youth leadership skills (Moran et al., 2009). The Louisiana 4-H State Leadership Boards have had a presence in Louisiana in some capacity for the past 25 years (Fox, 2010). One goal of the program is to offer a place for youth to work together toward a shared goal. Through their work, youth board members develop leadership skills while giving back to and influencing change in the state 4-H program, their local 4-H programs, and their communities. Louisiana has six boards that each focus on a specific program area. The six boards are (a) Citizenship Board; (b) Executive Board; (c) Fashion Board; (d) Food and Fitness Board; (e) Science, Engineering, and Technology (SET) Board; and (f) the Shooting Sports Ambassadors. To serve on a state leadership board, youth must be a 4-H member in grades 9-12. They may gain membership to a state board through either peer election or selection by application. Board members are exposed to an abundance of opportunities to engage in youth-adult partnerships and play an active leadership role in the Louisiana 4-H program (Fox, 2010). Each board is characterized by a culminating event or program that the youth members work together to plan, implement, and execute. In addition to a culminating event, each board participates in other activities throughout the year that range from organizing service-learning projects to being spokespeople for the Louisiana 4-H program.

Previous research has suggested that board members felt better able to think independently, developed some leadership skills, and expanded their interpersonal communication skills (Fox, 2010). While individual boards have completed exit surveys, no comprehensive study of all six boards has been conducted.

Purpose and Objectives

The purpose of this descriptive, correlational study was to measure the development of leadership life skills and the perceptions of youth-adult relationships by youth serving on the Louisiana 4-H State Leadership Boards. Specific study objectives included:

1) Measure the development of leadership life skills in terms of the State Leadership Boards as measured by the Youth Leadership Life Skills Development Scale.
2) Measure the perceptions and experiences of youth on the State Leadership Boards in terms of youth-adult relationships as measured by the Involvement and Interaction Rating Scale.
3) Determine if a relationship exists between the development of leadership life skills and youth-adult partnerships for youth on the State Leadership Boards.
4) Determine if a relationship exists between the development of leadership life skills and select demographic characteristics of youth on the State Leadership Boards.
Methods

Population and Sample

The target population for this census study included Louisiana 4-H State Board Members from all six boards serving during the year 2013-2014 \((N = 153)\). Responses were collected from 99 youth. The majority of the respondents were white (88.9%) females (59.6%) who reported living on a farm or in a rural area (43.4%). Respondents ranged in age from 15 to 20 years old \((M = 17.16, SD = 1.04)\), had been a 4-H member from 3 to 10 years \((M = 8.01, SD = 1.50)\), and had served on a state board from 1 to 5 years \((M = 2.30, SD = 1.03)\). Almost half of the respondents reported they were present at board sponsored events all of the time (46.5%).

Data Collection

The researcher collected responses from the target population \((N = 153)\) through an online questionnaire using Dillman, Smyth, and Christian’s (2009) Tailored Design Method. The target population was contacted via a Qualtrics-generated email that described the purpose of the study and contained a link to the questionnaire. The nonrespondents at the end of weeks one, two, and three were contacted as follow up. At the end of week four, a random sample, i.e., 20% of the remaining nonrespondents \((n = 13)\) were contacted via telephone to complete the questionnaire to control for nonresponse error. To guarantee that the results were representative of the target population, an independent samples \(t\)-test was used to compare respondents and nonrespondents. No differences were found between respondents and nonrespondents. As such, it was concluded that the sample was representative of the Louisiana 4-H State Board Members population and nonrespondents \((n = 13)\) were combined with respondents \((n = 86)\) for a total of 99 useable responses and a response rate of 65%. The study was approved by the LSU Agricultural Center Institutional Review Board.

Instrumentation

Two instruments were used in this study. The first was the Youth Leadership Life Skills Development Scale (YLLSDS; Seevers et al., 1995) which included 30 items measuring an individual’s perceptions of his or her development of leadership skills like communication, decision-making, getting along with others, learning skills, management skills, understanding yourself, and skills in working with groups as a result of program participation. Responses were collected using a 4-point Likert-type scale \((0 = \text{no gain}, 1 = \text{slight gain}, 2 = \text{moderate gain}, 3 = \text{a lot of gain})\) that referred to how much change had occurred in the development of the specific leadership skill. The following interpretative scale was used: 0.00 - 0.50 = no gain, 0.51 - 1.50 = slight gain, 1.51 - 2.50 = moderate gain, 2.51 - 3.00 = a lot of gain. Cronbach’s alpha reliability for the 30 items of the YLLSDS was 0.98.
The second instrument used in the study was the Involvement and Interaction Rating Scale (Jones & Perkins, 2005). This scale has 38-items that include bipolar statements to measure the participants’ perception of youth-adult relationships. An example of two bipolar statements is “Adults appear uneasy and afraid of youth” and “Adults seem comfortable working with youth.” The instrument is a 10-point scale that assesses youth involvement, adult involvement, and youth-adult interaction. The scale ranges from 1-2 = very poor; 3-4 = poor; 5-6 = fair; 7-8 = good; and 9-10 = excellent. Higher scores on the rating scale indicate greater levels of youth-adult partnership. Cronbach’s alpha reliability for the youth involvement subscale was 0.83, for the adult involvement subscale was 0.84), and for the youth-adult interaction subscale was 0.87.

Data Analysis

The data analyses for research objectives one through three involved computing descriptive statistics (e.g., means, percentages, frequencies, and standard deviations). Research questions four, five, and six were analyzed using Spearman rho. The strength of relationships was determined using Davis’ (1971) coefficient conventions: \( r = .01 \) to .09 = Negligible, \( r = .10 \) to .29 = Low, \( r = .30 \) to .49 = Moderate, \( r = .50 \) to .69 = Substantial, and \( r \geq .70 \) = Very Strong. A statistical significance level of .05 was established \textit{a priori} for all statistical tests.

Results

Objective one sought to measure the development of leadership life skills in terms of the State Leadership Boards as assessed by the Youth Leadership Life Skills Development Scale. The overall construct mean was 2.55. The two items with the highest means were (a) \textit{As a result of my 2013-2014 Louisiana 4-H State Board experience I: Get along with others} (\( M = 2.71, SD = .556 \)) and (b) \textit{Respect others} (\( M = 2.70, SD = .543 \)). The two items with the lowest means were (a) \textit{As a result of my 2013-2014 Louisiana 4-H State Board experience I: Am sensitive to others} (\( M = 2.33, SD = .958 \)) and (b) \textit{Trust other people} (\( M = 2.20, SD = .869 \)).

Objective two sought to measure the perceptions and experiences of youth on the State Leadership Boards in terms of youth-adult relationships as assessed by the Involvement and Interaction Rating Scale. Youth were asked questions to rate their experiences on the state boards according to youth involvement indicators, adult involvement indicators, and youth-adult interaction indicators. Mean values for each construct are reported in Table 1.

\begin{table}[h]
\centering
\begin{tabular}{lll}
\hline
\textbf{Item} & \textbf{M} & \textbf{SD} \\
\hline
Youth Involvement & 7.70 & 2.27 \\
Adult Involvement & 7.87 & 2.44 \\
Youth-Adult Interaction & 8.10 & 2.38 \\
\hline
\end{tabular}
\caption{Louisiana 4-H State Leadership Board Members’ Youth Involvement, Adult Involvement, and Youth-Adult Interaction}
\end{table}

\textit{Note}: Real limits: 1.00 to 5.49 = Low, 5.50 to 10 = High.
Objective three sought to determine if a relationship existed between the development of leadership life skills and youth-adult partnerships for youth on the State Leadership Boards. The analyses revealed that there was no significant relationship between the development of leadership life skills and youth-adult partnerships (see Table 2).

Table 2. Relationship Between Development of Leadership Life Skills and Youth-Adult Partnerships

<table>
<thead>
<tr>
<th></th>
<th>Youth Involvement</th>
<th>Adult Involvement</th>
<th>Youth-Adult Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>.085</td>
<td>.087</td>
<td>.030</td>
</tr>
</tbody>
</table>

*Note: Spearman Rho Correlation Coefficient; *p < .05.*

Objective four sought to determine if a relationship existed between the development of leadership life skills and members’ age, presence at board sponsored events, and number of years they served on a state board. The analyses revealed a positive and low relationship between leadership life skills development and age ($r_s = .27$), and leadership life skills and how often respondents were present at board sponsored events ($r_s = .29$). In addition, leadership life skills and how many years the respondent had served on a state board were found to be related moderately and positively ($r_s = .30$; see Table 3).

Table 3. Relationship Between Development of Leadership Life Skills and Selected Demographic Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Years on a State Board</th>
<th>Presence at Board Sponsored Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>.28*</td>
<td>.30*</td>
<td>.29*</td>
</tr>
</tbody>
</table>

*Note: Spearman Rho Correlation Coefficient; *p < .05.*

Conclusions, Recommendations, and Implications

Overall, 4-H members who served on the Louisiana 4-H State Leadership Boards perceived they gained “a lot” of leadership life skills from their board involvement. Specifically, members perceived that serving on the board assisted them with the ability to get along with others and respect others. This finding is similar to the results of Bruce et al. (2004) who concluded that 4-H members get along with others as a result of serving in a leadership role. Board members perceived they developed a high level of leadership life skills through service. Similarly, Seevers and Dormody (1994) found that there was a positive relationship between 4-H youth participating in leadership activities and an increase in the development of leadership life skills.

4-H members on the Louisiana 4-H State Leadership Boards reported high levels of youth involvement, adult involvement, and youth-adult interaction. Based on the high levels of involvement and interaction, youth-adult partnerships were present on the Louisiana 4-H State Leadership Boards according to the Continuum of Youth-Adult Relationships (Jones, 2006). No statistically significant relationship existed between the development of leadership life skills and
youth-adult partnerships for youth on the Louisiana 4-H State Leadership Boards. However, there was a relationship between leadership life skills and age, years served on a state board, and how often members were present at board sponsored events. As a member’s age, years served on a state board, and attendance at board sponsored events increased, so did his/her perceived gain in leadership life skills development.

One limitation of this study was its cross-sectional design. Data were collected from board members who served on one of the boards during the time period from June 2013 to June 2014. Another limitation of the study was that no comparison group of nonboard members was used to determine if differences existed between the groups.

**Recommendations for Practice**

Youth development professionals who work with youth leadership boards should create opportunities for targeted leadership life skills development. Even though this study explored the perceived gain of leadership life skills, there was no explanation as to how the skills were developed. Directed trainings on leadership skills, theories, and practices could increase the gain of leadership life skills (Carter & Spotanski, 1989; Seevers & Dormody, 1994).

The boards should continue the current practices of youth-adult partnerships. In addition, board sponsors could increase recruitment of varying adults to be a part of the boards. Jones and Perkins (2006) found that females participating in youth programs were more positive toward their experiences because they had female role models. Role models who relate to youth are a key component in youth-adult partnerships (Jones & Perkins, 2006). Similar to youth members, it is unclear what training adult sponsors are given when they agree to serve as sponsors. Training and instruction should be given to adult sponsors on youth-adult partnerships and mentoring relationships.

The population of the study and the total population of 4-H members are not concurrent with one another in terms of race or gender (Louisiana 4-H Youth Development Department, 2015). Youth development professionals could vary the recruitment efforts of potential board members to include a more diverse pool of applicants. This could include widening the range of diverse adult sponsors. Many times, youth feel more connected to adults of similar backgrounds as themselves (Rhodes, Liang, & Spencer, 2009). Cano and Bankston (1992) found that the presence of minority leaders influenced the 4-H program’s ability to recruit and retain minority youth.

Board sponsors and leaders should continue the practice of yearly assessments to gauge the impact of serving on the Louisiana 4-H State Leadership Boards. The assessments should evaluate if the boards are producing outcomes that coincide with the noted goals of the program.
Recommendations for Future Research

Future research should be conducted to determine if there is a difference in youth who serve on the Louisiana 4-H State Leadership Boards and other 4-H members who do not serve on the board. This study did not take into account the varying other leadership opportunities to which the youth were exposed and how that might affect the findings. This would provide better insight into the outcome of being a member on a state board.

In addition, future research should be conducted to determine if the presence of a youth-adult partnership relates to the development of leadership life skills. Previous research concluded that youth-adult partnerships have positive impacts on youth in many ways, including skill-building (Zeldin, McDaniel, Topitzes, & Calvert, 2000). This study looked at the aforementioned relationship but did not account for other external variables, such as club context (e.g., rural, urban) or club type (e.g., in-school club, project club, special interest club). Future research could delve more deeply into the subject to determine why the two variables had no significant relationship in this study.

As mentioned, this study did not explore the training or lack of training to which the board members were exposed on the subjects of leadership life skills and youth-adult partnerships. Future research should assess training that is provided and its impact on the gain of skills or competencies.

Finally, research on females in leadership positions and the transition from high school to the workforce would be an interesting subject of exploration. A larger percentage of youth serving on the Louisiana 4-H State Leadership Boards was female. However, in the workforce, people in leadership positions are mostly male (Warner, 2014). While women comprise over 50 percent of professional positions, they hold less than 15 percent of executive positions, comprise less than 10 percent of top earners, and hold fewer than 5 percent of Fortune 500 chief executive officer positions (Warner, 2014). Research should be conducted to see if other organizations have the same majority of female youth in leadership roles and to determine why shifts in leadership roles occur as females enter the workforce.

References


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Youths’ Perspectives of Experiential Learning Delivery: Findings from a Multistate 4-H Youth Program

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Shen Qin  
Yan Xia  
Maria Rosario T. de Guzman  
*University of Nebraska-Lincoln*

Youths’ perspectives are often unexplored in youth program development and implementation. This article examined youths’ perspectives of a 4-H youth prevention program called “Health Rocks!” that is designed to promote healthful decision-making skills, stress coping, and socioemotional skills related to substance use. Qualitative and quantitative data were collected and analyzed. Qualitative findings reveal that participants appreciated the fun and engaging curriculum, valued program staff who were interactive, and enjoyed the hands-on program activities. Participants also reported that the program positively impacted their knowledge and skills. Quantitative results show that participants who perceived the program as fun were significantly more likely to report engagement in the program, and participants who had positive views towards the program staff were significantly more likely to report knowledge after the program and engagement in Health Rocks! Findings have broader implications for future youth prevention program development, illustrating the need for engaging adult leaders and program activities to enhance the overall program experience for youth participants.

*Keywords*: youth perspective, substance use prevention, evidence-based program, program engagement, program evaluation

**Introduction**

Rates of substance use among youth remain alarmingly high in the United States. Nationally, over 41% of high school students report having smoked tobacco in their lifetime, 66% have used alcohol, and 41% have smoked marijuana (Centers for Disease Control and Prevention, 2014).
Extension and youth development professionals continue to emphasize the importance of substance use prevention. *Health Rocks!* is a national 4-H curriculum that was developed to prevent youth substance use by increasing knowledge of the impact of substance use, promoting positive social norms, and developing healthful behaviors and life skills. The curriculum was premised on current research and theory on positive youth development (PYD), including the risk and protective framework (Lerner, Phelps, Forman, & Bowers, 2009). Effective delivery of the curriculum involves experiential learning, employing interactive activities to foster critical thinking and reflection. Each activity includes specific objectives and reflection questions relating to curriculum material and activities. *Health Rocks!* has been used in a variety of summer camps, after-school programs, school enrichment programs, and other settings in 15 states and the District of Columbia (National 4-H Council, 2009).

Previous research has found that evidence-based youth programs can have positive influences on the well-being of participants while promoting the knowledge and skills needed for positive youth development (Lerner et al., 2014; Norton & Watt, 2014). However, most adolescent programs and curricula are shaped by the adult perspective and often overlook the perspectives of youth (Wong, Zimmerman, & Parker, 2010). The Sense of Community Theory suggests that for a person to feel engaged in a certain environment, the individual must feel like he or she has a voice in that environment (McMillan & Chavis, 1986). Scholars argue that youth are capable and situated to offer valuable contributions to program development, as they are not merely recipients of program services (Royce, 2009; Wong et al., 2010); however, they are rarely given the opportunity to provide their input in programs that aim to shape their health and well-being (Evans, 2007). Youth should be considered active participants who have a voice in program matters. Incorporating youth voice has been linked to higher quality programs and greater benefits for youth participants (e.g., increased knowledge) (Billig, Root, & Jesse, 2005; Celio, Durlak, & Dymnicki, 2011).

Overall, youths’ perspectives are important for the design, implementation, and evaluation of youth programs (Celio et al., 2011). Evaluation surveys often include open-ended questions to garner participants’ feedback; however, how these responses relate to program outcomes and contribute to program improvements have not been thoroughly explored. This study uses data from the *Health Rocks!* program to address two research questions:

1) What are youths’ perspectives on the curriculum and program delivery related to engagement?

2) To what extent are youths’ perspectives related to their reported program outcomes?

Based on previous research (e.g., Sallee et al., 2015), it is hypothesized that youths’ perspectives will predict youths’ reported knowledge, skills, assets, and program engagement. This information will be valuable to Extension personnel and other youth development professionals by providing a youth perspective for the design and implementation of future youth programs.
Methods

Sample

Study participants were youth from 13 states who completed 10 or more hours of Health Rocks! programming in 2014. Of the 103,774 participants who completed Health Rocks!, 27,774 completed the evaluation surveys that assessed program outcomes and engagement. Because the current study addressed participants’ perspectives, only the 3,742 participants who provided answers to the open-ended question at the end of the survey were included in the analysis. Demographics of the sample can be viewed in Table 1. Preliminary analysis showed no significant differences in program outcomes between the 3,742 youth who answered the open-ended survey question and a random sample of 3,742 youth who did not answer the open-ended survey question. Therefore, the results discussed focus on the sample of 3,742 respondents who provided their perspectives through the open-ended survey question.

Table 1. Demographic Information of the 3,742 Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>1,292</td>
<td>34.5</td>
</tr>
<tr>
<td>Girls</td>
<td>1,842</td>
<td>49.2</td>
</tr>
<tr>
<td>Unreported</td>
<td>608</td>
<td>16.2</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 and younger</td>
<td>406</td>
<td>10.8</td>
</tr>
<tr>
<td>10</td>
<td>527</td>
<td>14.1</td>
</tr>
<tr>
<td>11</td>
<td>905</td>
<td>24.2</td>
</tr>
<tr>
<td>12</td>
<td>794</td>
<td>21.2</td>
</tr>
<tr>
<td>13</td>
<td>461</td>
<td>12.3</td>
</tr>
<tr>
<td>14</td>
<td>235</td>
<td>6.3</td>
</tr>
<tr>
<td>15</td>
<td>100</td>
<td>2.7</td>
</tr>
<tr>
<td>16 and older</td>
<td>127</td>
<td>3.4</td>
</tr>
<tr>
<td>Unreported</td>
<td>187</td>
<td>5.0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian American</td>
<td>1,956</td>
<td>52.3</td>
</tr>
<tr>
<td>African American/Black</td>
<td>614</td>
<td>16.4</td>
</tr>
<tr>
<td>Native American</td>
<td>85</td>
<td>2.3</td>
</tr>
<tr>
<td>Asian American</td>
<td>47</td>
<td>1.3</td>
</tr>
<tr>
<td>Multi-Racial</td>
<td>215</td>
<td>5.7</td>
</tr>
<tr>
<td>Unknown</td>
<td>173</td>
<td>4.6</td>
</tr>
<tr>
<td>Unreported</td>
<td>652</td>
<td>17.4</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
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<tr>
<td>Hispanic</td>
<td>312</td>
<td>8.3</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>3,163</td>
<td>84.5</td>
</tr>
<tr>
<td>Unreported</td>
<td>267</td>
<td>7.1</td>
</tr>
</tbody>
</table>
Study Design

This study used a mixed methods design, which provided a more comprehensive and detailed understanding of youths’ experiences and how their perspectives are associated with program outcomes (Plano Clark & Creswell, 2008). Qualitative and quantitative data were collected in a self-report survey that was administered to Health Rocks! participants who completed 10 hours of programming. This instrument was developed by researchers at the University of Nebraska-Lincoln. Survey items were developed with a 4th- or 5th-grade reading level, which was consistent with the developmental level of the majority (89.2%) of participants. Six experts in 4-H youth development and developers of the Health Rocks! curriculum reviewed the instrument to confirm it was age-appropriate for youth and relevant to the program. Pilot testing of the evaluation instrument among youth showed acceptable reliability and content validity (Xia & de Guzman, 2011). Program implementers, who had received training on the evaluation measure, were present during data collection to assist participants if questions emerged while completing the survey. The instrument was further reviewed every year that it was used to examine internal consistency and potential for reduction of items. Originally, the survey contained 88 items based on the Search Institute’s 40 Developmental Assets (Search Institute, 2006). Item analysis was used to reduce the survey to 13 items. These items were chosen based on the outcomes of the program that were intended to be measured and the reliability of the items (Pather & Uys, 2008). Items with low Cronbach’s alphas were removed. The reduction of items also helped with the feasibility of the program evaluation.

Participants responded to the survey after completing the program. The instrument included 13 items that measured three program outcomes:

- knowledge of substance use consequences,
- coping skills related to stress, and
- other assets related to healthful decision-making.

The 13 items involved a “retrospective pretest.” Respondents first evaluated the knowledge, skills, and other assets based on how they felt after participating in the program (posttest) and then evaluated the knowledge, skills, and other assets based on how they felt before participating in the program (retrospective pretest). These items were on a 4-point Likert scale, ranging from 1 = strongly disagree to 4 = strongly agree. The retrospective pretest was chosen for two reasons. First, utilizing a pretesting format before curriculum implementation might compromise
the validity of the data (Rockwell & Kohn, 1989), as youth participants who have not been exposed to the curriculum might not be able to precisely assess their baseline knowledge and behavior. Second, educational programs often lack time and resources to implement evaluation; therefore, employing a retrospective pretesting format at the end of programming helps to balance the feasibility and rigor of the design.

Participants were also asked to respond to four posttest items related to their program engagement by rating the degree to which (a) “the training was interesting,” (b) “the staff members were friendly,” (c) they “learned a lot during the training,” and (d) they “actively participated in training activities.” Items were measured through the use of a 4-point Likert scale, from 1 = strongly disagree to 4 = strongly agree. Data from the retrospective pretest were originally collected to evaluate the impact of Health Rocks! on youth participants. For this study, only the posttest data were used.

The outcome variables of knowledge, skills, assets, and program engagement were recoded as binary variables for data analysis. As such, “strongly disagree” and “disagree” were coded as ‘0’ to represent participants who did not report knowledge, skills, assets, or program engagement. In contrast, “strongly agree” and “agree” were coded as ‘1’ to represent participants who reported knowledge, skills, assets, or program engagement. Binary data provided a meaningful way to compare participants who reported the program outcomes to those who did not report the program outcomes (Clark-Carter, 2009). Furthermore, binary data were appropriate for the study as the data were not normally distributed (Streiner, 2002).

Qualitative data in the form of responses to one open-ended question were collected to further the understanding of the quantitative survey data. The open-ended question asked participants to share their perspectives regarding their experiences participating in Health Rocks! Specifically, the open-ended question stated: “Please share any additional comments or thoughts regarding your Health Rocks experience.” To answer the first research question (What are youths’ perspectives on the curriculum and program delivery related to engagement?), we coded responses from the 3,742 participants who provided comments to the open-ended question by using thematic analysis strategies. Each comment was assigned a code on the basis of dominant messages and ideas conveyed in participants’ responses (Eisner, 1998). When more than one idea was expressed in a comment, multiple codes were assigned. Three coders separately completed preliminary coding on data from one state to identify common codes. The coders then met to compare codes and create a codebook. The remaining data were divided among the three coders and coded through the use of the codebook. To evaluate intercoder reliability, three states (23% of data) were coded by at least two of the three coders. The first state was coded by coder A and coder B. The second state was coded by coder B and coder C. The third state was coded by coder A and coder C. An 87% agreement rate was achieved across the three states. The three coders then combined the codes into overarching themes. Four main themes emerged from the participants’ comments (described in the Findings section).
Then, to answer the second research question (To what extent are youths’ perspectives related to their reported program outcomes?), qualitative data were analyzed as quantitative data following Culp and Pilat’s (1998) approach to quantifying open-ended survey feedback. Qualitative themes were recoded into quantitative binary variables. Participants were assigned a ‘1’ if they mentioned the theme in their comment and a ‘0’ if they did not. These generated quantitative variables served as the predictor variables to examine the association between youths’ perspectives and their program outcomes.

Findings

Youths’ Perspective on the Curriculum and Program Delivery

Four themes emerged from the youths’ qualitative comments that address the first research question. Findings revealed that over half (55.7%) of the 3,742 Health Rocks! participants commented about fun and enjoyment, 12.5% commented about program staff, 14.5% commented about program activities, and 31% commented about impact. Details of each theme are described below. Frequencies and percentages of comments for each theme are in Table 2.

<table>
<thead>
<tr>
<th>Comment</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comments related to Fun &amp; Enjoyment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Love/Like the program</td>
<td>1,130</td>
<td>30.2</td>
</tr>
<tr>
<td>Fun</td>
<td>883</td>
<td>23.6</td>
</tr>
<tr>
<td>Comments related to Program Staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff in general</td>
<td>145</td>
<td>3.9</td>
</tr>
<tr>
<td>Specific staff</td>
<td>318</td>
<td>8.5</td>
</tr>
<tr>
<td>Comments related to Activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activities in general</td>
<td>320</td>
<td>8.6</td>
</tr>
<tr>
<td>Specific activities</td>
<td>253</td>
<td>6.8</td>
</tr>
<tr>
<td>Comments related to Impact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learned a lot</td>
<td>872</td>
<td>23.3</td>
</tr>
<tr>
<td>Stay away from drugs</td>
<td>259</td>
<td>6.9</td>
</tr>
<tr>
<td>Influenced future</td>
<td>63</td>
<td>1.7</td>
</tr>
<tr>
<td>Impacted decision-making</td>
<td>32</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% due to overlapping themes in participants’ responses.

Theme 1: Participants appreciated the fun and engaging curriculum. Overwhelmingly, the majority of comments (95%) about the program were positive, showing that curricular content and delivery were engaging and relevant to participants. Youth enjoyed the program and thought that it was “fun” and “interesting.” For example, one female (age 11) said, “It was cool, and I liked it,” while one male (age 9) said, “I found Health Rocks! really interesting.” Furthermore, participants expressed a desire for more programming by saying, “I wanted it to last longer!” or “I hope we continue Health Rocks! for more years to come.”
A few comments (5%) included a negative perspective on the program, such as “I didn’t learn anything” or “It was alright, could have been better.” Of the comments that were negative, many were from participants expressing boredom and indicating that they had previously learned about drugs and alcohol in other classes or programs.

**Theme 2: Participants appreciated program staff.** Participants expressed gratitude and appreciation for program staff. Over 12% of the comments related to general staff in the program (e.g., “I really liked how the staff were excited to train us.”), as well as referred to specific staff members (e.g., “Thank you so much, Ms. W.”). These comments showed that youth participants appreciated staff members, particularly when they brought their excitement and enthusiasm to the training.

**Theme 3: Participants valued program activities.** Youth participants also provided feedback relating to the program activities (14.8%). They enjoyed the experiential activities and thought that the ‘hands-on’ nature of these activities enhanced their learning. One male (age 13) said, “I really enjoyed all the activities we did,” while another male (age 12) reported that “Having all of the hands-on projects and examples really got the point across.”

Students also mentioned more specific activities, with statements such as “I loved making the commercial” or “I liked how we used straws and balloons to create a visual representation of the damage drugs can cause you.” The activities most preferred by youth, in order of preference, were:

1) A straw-breathing activity that demonstrated how smoking affects lung capacity;
2) A balloon activity that demonstrated the impact of peer pressure;
3) Skits that taught decision-making, peer pressure, and other skills and information;
4) Use of drunk goggles for showing how drinking impairs functioning; and
5) Use of stories for discussing how substance use affects a person’s relationships.

Youth also provided suggestions on how to improve the program. The majority of their suggestions related to program activities. Examples of suggestions included “They should have more experiments,” “They need more action and exercise in the games,” and “Go outside and play.” Such comments provided evidence that youth appreciated activities and projects during programming, specifically hands-on activities that allowed them to get up and move.

**Theme 4: Experiential learning positively impacted participants’ knowledge and skills.** Youths’ comments indicated that the program positively impacted their attitudes toward substance use and exposed many to new information. Participants (31%) expressed having gained knowledge and skills from their involvement in *Health Rocks!* One youth stated, “I learned that smoking and drinking is not good for you.” The program also exerted a positive influence on youths’ decision-making and help youth resist peer pressure. For example, one male (age 10) reported “[T]his class helped me to know what to do and what not to do when it
comes to drugs,” and another male (age 12) indicated that “Health Rocks! helped me understand what to say if people offer me drugs and how to say no to peer pressure.”

Participants also expressed that they developed the confidence to share the knowledge they gained from Health Rocks! with family and friends. One student reported, “I am going to tell my family about everything I learned.” Another youth explained, “Most people around my house smoke. This gave me ideas to help my family.” Comments such as these indicated that the Health Rocks! program may have an impact on the youth completing the program but also on others involved in their lives.

The Association of Youths’ Perspectives with Program Outcomes

To answer the second research question (To what extent are youths’ perspectives related to their reported program outcomes?), we converted the first three qualitative themes related to fun, staff, and activities to quantified categories. These three qualitative themes were mentioned in previous research as important aspects of youth programming (e.g., Bulanda & McCrea, 2013). Binary logistic regression analyses were conducted to determine whether the quantified categories of fun, staff, and activities were associated with the program outcomes of knowledge, skills, assets, and program engagement. In other words, these analyses examined whether participants who reportedly experienced fun, appreciated staff, or enjoyed the activities were more likely to report the program outcomes of knowledge, skills, assets, or program engagement. The aim of this study was not to prove a causal relationship between youths’ perspectives and program outcomes but to simply examine their associations. Predicted probability percentages were calculated using the formula of \( \frac{\text{odds ratio}}{\text{odds ratio} + 1} \) (Allison, 1999; Australian Bureau of Statistics, 2012). Statistics can be viewed in Table 3.

### Table 3. Binary Logistic Regression Coefficients of Program Outcomes on Survey Comments

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( \beta )</th>
<th>SE</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds ratio</th>
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<td></td>
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<tr>
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<td>1.539</td>
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<tr>
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<td>1.732</td>
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### Predictor Evaluation Results

<table>
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<tr>
<th>Predictor</th>
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<th>SE</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds ratio</th>
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<tr>
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<tr>
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<td></td>
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<td>3</td>
<td>.000***</td>
<td></td>
</tr>
</tbody>
</table>

*Note: * *p* < .05; ** *p* < .01; *** *p* < .001.

The full knowledge model tested whether there was a significant difference in knowledge between participants who reportedly experienced fun, appreciated staff, and enjoyed the activities and participants who did not. This model was statistically significant, indicating that the predictors as a set (i.e., fun, staff, and activities) distinguished between participants who reported knowledge and participants who did not report knowledge after the program. Individually, staff was a significant predictor for the model. Participants who commented that they appreciated the Health Rocks! staff were 89% more likely than participants who did not comment about the staff to report learned knowledge after the program. Neither the model relating to skills nor the model for assets were statistically significant, indicating that there was no difference in reported skills or assets between participants who commented on fun, staff, or activities and participants who did not.

The program engagement model was also statistically significant, indicating that the fun, staff, and activities predictors distinguish between participants who reported program engagement and participants who did not report program engagement. All three indicators were significant in this model. Participants who perceived Health Rocks! as fun were 67% more likely than participants who did not comment about fun to report program engagement after the program. Likewise, participants who reportedly appreciated staff and enjoyed the activities were 66% and 65% more likely, respectively, to report program engagement.

### Discussion and Implications

Findings suggest that Health Rocks! participants viewed the program and curriculum positively. Specific to the first research question on youth’s perspectives relating to the curriculum and program delivery, many participants found that the program was fun and engaging. They appreciated the staff and enjoyed the hands-on and interactive activities. The “activities” theme relates to the experiential learning approach that is implemented in the Health Rocks! program. Experiential learning guided the creation of the Health Rocks! program curriculum and involves actively learning through an experience. Thus, activities during the program play a major role in the process of the delivery (Kolb, 1984). Even though findings from this study pertained to the Health Rocks! curriculum, they offer broader implications for Extension and other youth program personnel for developing similar youth prevention programs in the future.
Consistent with our hypothesis, quantitative results illuminate several interesting relationships between youths’ feedback and their reported outcomes. First, participants who perceived Health Rocks! as fun were significantly more likely to report being engaged in the program. Responses revealed that participants valued hands-on activities and movement throughout programs. Youths’ preferences for highly engaging and experiential programming have been well-documented in the literature (Isoldi & Dolar, 2015). This was achieved in Health Rocks! through the inclusion of activities and games in the curriculum. As science- and health-related programs have many options for activities that aid in the delivery of information to youth (e.g., Sallee et al., 2015), program personnel should focus attention on the specific methods they are using to engage participants. Specifically, program personnel should consider utilizing methods that have been found enjoyable by youth, such as curriculum-related games, stories, role-play activities, science experiments, and other hands-on activities where participants can interact with others and move throughout the program.

Second, comments about program staff illustrate the positive role that adult leaders have in the overall program experience for youth participants, which has been supported by previous research on the 4-H program (Hutchins, Seevers, & Van Leeuwen, 2002). Participants who had positive perceptions about the program staff were significantly more likely to report knowledge after the program and that they were engaged in Health Rocks! Adult program leaders who focus initially on building relationships with youth participants are more likely to promote positive development and behavior. Our results underscore the importance of including trained staff who develop supportive relationships with youth, as well as staff who work to ensure youths’ physical and psychological well-being (Eccles & Gootman, 2002; Henderson et al., 2007). Programs should employ personnel who enjoy interacting with youth and are willing to engage with them during in program implementation. Additionally, adult personnel training before the program should emphasize the importance of adult-youth relationships and accentuate that adult personnel demonstrate empathy and professionalism with youth.

**Limitations**

It should be noted that the aim of this study was not to show if Health Rocks! is effective. Findings should not be interpreted as participants are more likely to increase their knowledge, skills, or assets if they leave a comment on their evaluation survey. The open-ended survey question aimed to elicit general feedback about Health Rocks! and did not specifically ask about specific outcomes. Additionally, findings do not imply that only participants who took the time to write a narrative comment actually had these experiences. Qualitative comments simply allowed us to gain a more detailed understanding of youths’ experiences, supplementing their quantitative responses. The study used a written survey design, which may have been challenging for participants under the age of 10, who comprised 10.8% of our sample. This is a methodological limitation that must be acknowledged as it impacts the validity of the results. Future studies should investigate alternative methods to assess the perceptions of young.
participants in a more precise manner. Future work should also assess whether the current findings can be reproduced with a sample of youth who are a better match developmentally with the study data collection methods.

Overall, attention should be paid to the importance of program curriculum, staff, and activities. Findings from this study suggest that when youth perceive enjoyable curriculum, youth-centered staff, and engaging activities, they are more likely to experience the intended program outcomes and program engagement. Youths’ perspectives from this study on the Health Rocks! program can be incorporated into the development of future youth programs. Extension and youth program personnel should continue to seek youth perspectives in the development, implementation, and evaluation of future youth programs to positively influence youth and their development.

References


Youths’ Perspectives of Experiential Learning Delivery


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**Acknowledgment**

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Exploring the Social Capital of Cooperative Extension Agents in Mississippi

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University of Florida

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The Cooperative Extension System has a high turnover rate. Studies indicate a need to improve collaboration and communication efforts between agents to improve their retention. This exploratory study used a social capital lens to investigate agents’ collegial relationships and access to information. Cross-sectional data were collected from a nonrandomized sample of Extension agents from Mississippi State University (MSU) Extension. Results showed agents’ engagement in professional associations depended on their programmatic responsibilities. Few agents were active members of associations that were not linked to their specific program area. Findings pointed to a low level of bridging capital and a higher level of bonding capital since agents had strong ties with colleagues in their own programmatic area. Agents mostly socialized with others in their own program area at statewide events, and most did not seek information from a district or regional director. This may adversely impact information sharing due to an overdependence on homogenous networks. This study suggested the social capital of MSU Extension agents could be more fully developed. Agents may benefit from opportunities to engage in national-level and heterogenous professional organizations to build bridging capital.

Introduction

For years, the Cooperative Extension System has searched for ways to improve the retention of agents (e.g., Kutilek, 2000; Safrit & Owen, 2010; Strong & Harder, 2009); yet, the system still struggles with employee turnover. For example, Benge and Harder (2017) found the turnover rate for one state Extension system was more than twice the national public workforce average. A recent study by Vines et al. (2018) articulated the need to focus on communication and collaboration strategies to improve the retention of early-career agents. Similarly, past research has pointed towards the importance of collegial relationships within Extension (e.g., Benge & Harder, 2017; Borr & Young, 2010). It is clear that agents’ relationships and access to information are important components of their work experiences. Using a social capital lens to
further explore these factors may offer Extension new information that can be used by Extension administrators and staff development professionals to better support agents.

**Theoretical/Conceptual Framework**

In 1973, Granovetter famously framed an argument for the “strength of weak ties” (p. 1360) which laid the foundation for future studies of social capital. Granovetter argued individuals with weak ties to people within different social networks had more opportunities and access to information than individuals with an equivalent number of strong ties with people within their own social network. Essentially, Granovetter articulated his support for the adage: it’s not what you know, it’s who you know.

Many definitions of social capital exist (Paldam, 2008). However, “the consensus is growing in the literature that social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures” (Portes, 1998, p. 6). More simply, “social capital refers to our relations with one another” (Putnam, 1995, p. 665).

It is through connections with other individuals and groups that a specific actor gains social capital; having more connections is generally advantageous. Bourdieu (1986) explained:

> The volume of the social capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilize and on the volume of the capital (economic, cultural or symbolic) possessed in his own right by each of those to whom he is connected. (p. 51)

Thus, if the result of having social capital is that an individual can rely upon his or her social network to obtain benefits, then social capital facilitates “productive activity” (Coleman, 1988, p. S101).

Different types of social capital exist. Putnam (2000) described the concepts of bonding and bridging capital. Bonding social capital results from networking within a homogenous group, such as units within a company, members of a country club, or a family network. Bonding social capital tends “to reinforce exclusive identities and homogenous groups” (Putnam, 2000, p. 22) and is associated with an in-group mentality. Putnam (2000) noted that this can be positive for providing social and psychological support to members of the in-group, but can also negatively lead to antagonism towards out-group individuals.

Another potential negative effect of the homogenous nature of bonding social capital is its influence on diffusing information (Putnam, 2000). Rogers (2003) noted that “homophily can act as a barrier to the flow of innovations within a system” (p. 306) because of the tendency for individuals to share information only within the groups to which they belong, slowing the diffusion of innovation to outside groups. High degrees of homophily occur when very few
individuals within a group possess bridging social capital and instead primarily rely upon their bonding social capital. In terms of organizational impact, a high degree of homophily can stifle innovation if not managed appropriately.

In contrast, bridging social capital is “better for linkage to external assets and for information diffusion” (Putnam, 2000, p. 22). Bridging social capital is inclusive and associated with networks that are outwardly focused and comprised of individuals across diverse backgrounds. Access to assets not available within the homogenous group is the leading benefit of bridging social capital; this ties back to Granovetter’s (1973) argument for the strength of weak ties. Examples of bridging networks include civically-oriented associations and political movements.

Cohen and Prusak (2001) provided a helpful explanation of bonding and bridging social capital within the context of organizations, using examples described as communities and networks. Communities were described as focused, centered, enforcers of norms, and “typically closed [sic] in some sense: defined by a separation between those inside and outside the community” (Cohen & Prusak, 2001, p. 56). This description of community closely aligns with the type of setting that Putnam (2000) asserted would lead to the development of bonding social capital. In contrast, Cohen and Prusak (2001) described networks as “generally more open, an interlocking web of connections. Individuals in the network know the people they have direct contact with, but they do not necessarily know their contacts’ contacts” (p. 57). Networks can provide the connections necessary to develop bridging social capital.

Little research has been conducted in the United States about the social capital of Extension agents and its influence on professional roles, interpersonal communication, diffusion of information, and innovation, although much has been written about Extension’s contributions to social capital within communities (e.g., Civittolo & Davis, 2011; Fields, 2017; Prins & Ewert, 2002). The exploratory study presented here will help to address the gap in the literature, as well as provide practical recommendations for Extension.

**Purpose and Objectives**

“Social capital is defined by its function” (Coleman, 1988, p. S98) to facilitate certain actions within social structures that otherwise might not take place. The purpose of this study was to explore the social capital of Extension agents of Mississippi State University Extension (MSU Extension) by investigating some of these actions in the context of the agents’ professional roles. The specific objectives were to describe the agents’ (a) memberships and engagement in organizational teams and professional associations, (b) levels of engagement in professional associations, (c) information-seeking behaviors, and (d) socializing preferences.
Methods

A nonrandomized, exploratory study was conducted to investigate the study’s objectives. MSU Extension is a smaller-sized organization, so a census was attempted to increase the potential number of respondents representing the different program areas. An assumption of the study was that the program area(s) in which an agent worked would influence social capital, given that a program area also influences which Extension program development team(s) an agent may join and the program priorities toward which he/she may work. Further, most Extension professional associations are linked to a specific program area.

Survey Instrument

No existing social capital instrument was found that was suitable to the context of Cooperative Extension; therefore, an instrument was developed specifically for this study. The survey instrument included questions focused on agents’ engagement in professional associations and organizational teams, information-seeking behaviors, socializing preferences, and demographics.

The instrument was reviewed for face validity and contextual appropriateness by three state Extension specialists with professional experience spanning three state Extension systems, including the state of interest. Minor revisions to adjust the wording to fit the state context were made, as well as minor adjustments to the survey flow in Qualtrics.

The section of the instrument focused on agents’ engagement in professional associations and organizational teams asked them to indicate if they belonged to an Extension professional association, state-level programmatic team, local-level programmatic team, regional or district team, or university governance. For each association to which they reported belonging, agents indicated their level of engagement by reporting if they served on a committee (SC), held an elected role (SE), attended state-level events (AS), or attended national-level events (AL). A statewide conference was given as an example of a state-level event, which may have influenced participants’ responses. Agents also were asked to indicate their level of engagement in organizational teams, but these data were not analyzed further due to the low number who reported belonging to organizational teams.

Two questions measured information-seeking behaviors: from whom do you most often seek out information related to doing your job, and from whom do you most seek information when you want to know what is happening in the statewide Extension organization. Response options were (a) colleagues in my office, (b) colleagues in other counties, (c) my District/Regional Extension Director, (d) my Program Leader, (e) my assigned mentor, or (f) other. Respondents who picked other were asked to list from whom they sought information. An additional response option was excluded from analysis due to a clarity issue identified ex post facto, resulting from recent changes in staffing structure. This resulted in two responses being removed for data analysis for this question.
Socializing preferences were measured by asking agents to report with whom they spent the most time socializing at statewide events, such as the state’s annual conference. Statewide events are typically the only time the entire organization will be present together and therefore provide agents with a wider variety of choices for socializing than they would experience in their day-to-day county work. Response options were (a) my county colleagues, (b) colleagues within my program area, (c) colleagues outside of my program area, (d) state specialists, (e) my assigned mentor, or (f) other. Respondents who picked other were asked to list with whom they spent the most time socializing at statewide events.

Demographic items for the survey instrument asked the respondents to report in which program area(s) they had official responsibilities (agriculture, community resource development, family and consumer sciences, natural resources, 4-H Youth Development, other), years worked in current Extension position, prior professional experience in Cooperative Extension (yes/no), and gender identification (male/female).

Data Analysis

Data analysis was conducted using descriptive frequencies relating to agents’ membership to organizational teams and professional associations and level of engagement, information-seeking behaviors, and socializing preferences. In terms of interpreting the data, Cohen and Prusak’s (2001) definitions of communities and networks were used to relate the findings to the concepts of bridging and bonding capital (Putnam, 2000). Programmatic teams, county colleagues, colleagues within a program area, and assigned mentors were operationally identified as fitting the criteria for a community, which is associated with bonding capital. Regional or district teams, university governance, colleagues outside of a program area, state specialists, and all levels of administration were operationally identified as fitting the criteria for a network, which is associated with bridging capital. Engagement in a professional association was interpreted based on state-level participation being associated with communities and bonding capital and national-level participation being associated with networks and bridging capital. Percentages reported are based on the number of usable responses for a particular item, which varies due to missing data.

Participant Characteristics

As a professional courtesy, permission was obtained from the Director of MSU Extension in October 2017 to survey the system’s agents. An IRB exemption was received from the University of Florida in November 2017. An invitation to participate in the study and a generic link to the online Qualtrics survey instrument were emailed to 126 agents. Two reminder emails were sent before the survey was closed in December 2017 with a total of 79 usable responses received for a response rate of 62.69%. The failure to obtain a complete census means the responses are limited to the population of respondents.
In Mississippi, a family and consumer sciences (FCS) agent and an agriculture and natural resources (ANR) agent exist in each county, and counties with 8,000 or more 4-H-eligible youth sometimes support a third agent (4-H) position. Programmatically, the FCS and ANR agents in a county also share 4-H (40%) and community resource development (10%) responsibilities, in addition to their primary program area.

From the population sample, many agents self-identified as having programmatic responsibilities in 4-H youth development (77.2%, n = 61), community resource development (62%, n = 49), agriculture (45.6%, n = 36), family and consumer sciences (41.8%, n = 33), and natural resource and Sea Grant (31.6%, n = 25). On average, agents had approximately 12 years of work experience, and most (77.5%, n = 55) did not have any prior jobs in Cooperative Extension. In addition, approximately 58% (n = 41) of the sample was female, while 42% (n = 30) was male. Descriptive statistics were used to analyze the data by objective.

Findings

Objective 1: Agents’ Memberships and Engagement in Organizational Teams and Professional Associations

The first objective of the study was to describe agents’ membership and engagement in professional associations and organizational teams; membership and engagement trends provide an indication of agents’ opportunities to build bonding and bridging capital through their communities and networks. Most Extension agents (92.4%, n = 73) belonged to an Extension professional association (see Table 1). Some agents were also members of local programmatic teams (19%, n = 15, bonding capital) and regional or district teams (15.2%, n = 12, bridging capital). In contrast, only one agent (1.3%) was involved in a university governance group (bridging) and five agents (6.3%) reported belonging to a state level programmatic team (bridging).

Table 1 provides a descriptive overview of agents’ membership to different professional organizations. While many professional organizations exist within the context of Cooperative Extension, the program priority area of agents often influences their membership to different organizations. As shown in Table 1, most agents involved in agriculture programming were members of the National Association of County Agricultural Agents (NACAA, 80.6%). Similarly, the majority of those in community resource development and natural resources were also involved in NACAA (55.1% and 84%, respectively). Approximately half the sample of agents in 4-H youth development were also members of NACAA. In contrast, most family and consumer sciences agents belonged to the National Extension Association of Family & Consumer Sciences (NEAFCS, 72.7%). Irrespective of programmatic area, about one-third of agents were members of Epsilon Sigma Phi (ESP; ESP is open to Extension professionals regardless of program area) and the National Association of Extension 4-H Agents (NAE4-HA). However, there were no agents with membership to the National Association of Community
Development Extension Professionals (NACDEP) or the National Association of Extension Program and Staff Development Professionals (NAEPSDP).

Table 1. **Extension Agents’ Membership in Professional Association by Program Area**

<table>
<thead>
<tr>
<th>Program Area</th>
<th>n</th>
<th>ANREP % (n)</th>
<th>ESP % (n)</th>
<th>NACAA % (n)</th>
<th>NAE4-HA % (n)</th>
<th>NEAFCS % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>36</td>
<td>5.6 (2)</td>
<td>19.4 (7)</td>
<td>80.6 (29)</td>
<td>25.0 (9)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Community Resource Development</td>
<td>49</td>
<td>2.0 (1)</td>
<td>26.5 (13)</td>
<td>55.1 (27)</td>
<td>28.6 (14)</td>
<td>30.6 (15)</td>
</tr>
<tr>
<td>Family &amp; Consumer Sciences</td>
<td>33</td>
<td>0 (0)</td>
<td>27.3 (9)</td>
<td>18.2 (6)</td>
<td>30.3 (10)</td>
<td>72.7 (24)</td>
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<tr>
<td>Natural Resources</td>
<td>25</td>
<td>8.0 (2)</td>
<td>16.0 (4)</td>
<td>84.0 (21)</td>
<td>28.0 (7)</td>
<td>4.0 (1)</td>
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<tr>
<td>4-H Youth Development</td>
<td>61</td>
<td>4.9 (3)</td>
<td>21.3 (13)</td>
<td>50.8 (31)</td>
<td>31.1 (19)</td>
<td>26.2 (16)</td>
</tr>
</tbody>
</table>

*Note: 1Association of Natural Resource Extension Professionals.*

Objective 2: **Agents’ Levels of Engagement in Professional Associations**

Social capital also relates to the level of engagement in professional associations. Those who are more engaged have increased opportunities to develop social capital. Table 2 shows the level of engagement for agents reporting membership in different professional associations. While only three agents of the sample had a membership to ANREP, these individuals did not serve on a committee or hold an elected role and did not regularly attend state-level or national-level events.

Those agents with membership to ESP, NACAA, NAE4-HA, and NEAFCS were more likely to regularly attend state-level events but less likely to regularly attend the national-level events of these associations. In addition, less than half the sample of agents with membership to professional associations served on a committee or held an elected role. Overall, there was a clear trend across all associations for agents’ engagement to be limited to regular attendance at state-level events.

Table 2. **Extension Agents’ Level of Engagement in Professional Associations**

<table>
<thead>
<tr>
<th>Professional Association</th>
<th>n</th>
<th>Service on Committee % (n)</th>
<th>Service in Elected Role % (n)</th>
<th>Regularly Attend State-Level Events % (n)</th>
<th>Regularly Attend National-Level Events % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANREP</td>
<td>3</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>ESP</td>
<td>17</td>
<td>23.5 (4)</td>
<td>41.2 (7)</td>
<td>58.8 (10)</td>
<td>17.6 (3)</td>
</tr>
<tr>
<td>NACAA</td>
<td>34</td>
<td>29.4 (10)</td>
<td>23.5 (8)</td>
<td>55.9 (19)</td>
<td>20.6 (7)</td>
</tr>
<tr>
<td>NAE4-HA</td>
<td>23</td>
<td>34.8 (8)</td>
<td>21.7 (5)</td>
<td>65.2 (15)</td>
<td>13 (3)</td>
</tr>
<tr>
<td>NEAFCS</td>
<td>27</td>
<td>18.5 (5)</td>
<td>37 (10)</td>
<td>74.1 (20)</td>
<td>18.5 (5)</td>
</tr>
</tbody>
</table>
Objective 3: Agents’ Information-Seeking Behaviors

Table 3 displays the sources most frequently used by the agents for job-related information and information about statewide Extension, providing insight about the agents’ use of assets. Results showed that almost half the sample of agents (48.6%, n = 35) sought out information relating to their job from colleagues in other counties. A few agents (25%, n = 18) sought job-related information from the district or regional Extension director. In terms of “other” sources of information, three agents identified state specialists, and one agent said upper administration.

In contrast, many agents (48.6%, n = 35) sought out information about statewide Extension from the regional Extension director, while fewer agents (26.4%, n = 19) reached out to colleagues in other counties. Only a small number of agents asked colleagues in their own county about job-related information (12.5%, n = 9) and information on happenings in statewide Extension (5.6%, n = 4). For information about statewide Extension from “other” sources, one agent identified upper administration, one agent said 4-H specialist, and one agent reported a lack of interest in what happens at the statewide level.

Table 3. Information Source Frequently Used by Extension Agents

<table>
<thead>
<tr>
<th>Information Source</th>
<th>Type of Information</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Job-related informationa</td>
<td></td>
</tr>
<tr>
<td>Colleagues in my office/county</td>
<td>12.5 (9)</td>
<td></td>
</tr>
<tr>
<td>Colleagues in other counties</td>
<td>48.6 (35)</td>
<td></td>
</tr>
<tr>
<td>District/Regional Extension director</td>
<td>25 (18)</td>
<td></td>
</tr>
<tr>
<td>Program leader</td>
<td>2.8 (2)</td>
<td></td>
</tr>
<tr>
<td>Assigned mentor</td>
<td>2.8 (2)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5.6 (4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information about statewide Extensionb</td>
<td></td>
</tr>
<tr>
<td>Colleagues in my office/county</td>
<td>5.6 (4)</td>
<td></td>
</tr>
<tr>
<td>Colleagues in other counties</td>
<td>26.4 (19)</td>
<td></td>
</tr>
<tr>
<td>District/Regional Extension director</td>
<td>48.6 (35)</td>
<td></td>
</tr>
<tr>
<td>Program leader</td>
<td>8.3 (6)</td>
<td></td>
</tr>
<tr>
<td>Assigned mentor</td>
<td>1.4 (1)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>4.2 (3)</td>
<td></td>
</tr>
</tbody>
</table>

Note: aN = 70. bN = 68.

Objective 3: Socializing Preferences

Socializing preferences were explored to describe bonding social capital within the Cooperative Extension agents participating in this study. Results shown in Table 4 indicate many agents (65.3%, n = 47) mostly socialized with colleagues within their own program area during statewide Extension events. A few agents (20.8%, n = 15) socialized most with their county colleagues, while only a small number of agents (4.2%, n = 3) socialized most with others outside their program area. However, no agent reported spending most of their time socializing with state specialists and mentors. Agents who chose “other” most commonly indicated they like to socialize with everyone.
Table 4. Socializing Preferences of Extension Agents

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>With whom do you spend the most time socializing at statewide events? (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My county colleagues</td>
<td>15</td>
<td>20.8</td>
</tr>
<tr>
<td>Colleagues within my program area</td>
<td>47</td>
<td>65.3</td>
</tr>
<tr>
<td>Colleagues outside my program area</td>
<td>3</td>
<td>4.2</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>9.7</td>
</tr>
</tbody>
</table>

Note: N = 72.

Discussion and Recommendations

The purpose of this study was to explore the social capital of Extension agents of MSU Extension. It is likely that an Extension agent’s social capital is influenced by his or her programmatic responsibilities. Unsurprisingly, the agents’ programmatic responsibilities influenced their selection of professional associations. The professional associations that are not linked to a specific program area (i.e., ESP and NAEPSDP) had few or no members from the respondents in this study. Instead, almost all agents joined professional associations with a programmatic focus, such as NACAA, NEAFCS, or NAE4-HA. Research has shown that homogenous program areas are most closely associated with bonding capital (Putnam, 2000).

As Putnam (2000) suggested, bonding capital has potential advantages and disadvantages. Recall from Putnam (2000) that one advantage of bonding capital is the provision of psychological and social support to group members. In the context of MSU Extension, this seems to be true. At statewide events, agents mostly socialized with others who shared their programmatic responsibilities, further providing support for the idea that program areas form the basis of community (Cohen & Prusak, 2001) within MSU Extension. Conversely, too much reliance upon the program area community may lead agents to view people in other program areas as outsiders (Putnam, 2000). Vines et al. (2018) reported that new agents found it difficult to partner with other agents outside of their program areas.

Further, the lack of socialization with agents whose programmatic responsibilities differ would be expected to negatively impact the diffusion of information (Putnam, 2000) and innovation (Rogers, 2003) between program areas and across the statewide Extension organization. Many possible topics of importance to agents cross Extension programmatic boundaries, such as new strategies for recruiting and managing volunteers, assessing community needs, or evaluating program impact. The influence of programmatic responsibilities on an agent’s socialization preferences needs to be researched further to more deeply understand how this impacts the development of social capital and communication within the Extension organization.

Most agents in Mississippi have responsibilities in three program areas: ANR or FCS, plus 4-H and community development. However, engagement in professional associations does not match what one would expect based on MSU Extension’s staffing plan. This suggests agents may view
themselves differently from their formal assignments. For example, an agent may prefer his or her agricultural program responsibilities as compared to the community development, natural resources, or 4-H responsibilities. One indication of this is the lack of agents with membership in NACDEP, despite 62% of responding agents acknowledging they had community development responsibilities. Professional associations also exist for natural resources (ANREP) and 4-H (NAE4-HA), yet they did not appear to be prioritized for membership either. More investigation is needed to determine the factors influencing how agents determine which professional association to join, the influence that has on the development of social capital, and the impacts on program quality and job performance.

Despite agents’ strong ties with their programmatic colleagues, nearly half reported accessing specific information from a district/regional director. In Mississippi, this is the Regional Extension Coordinator, an administrative position with responsibility for providing programmatic direction to agents and staff. The individuals in the Regional Extension Coordinator positions are often relied upon for information about what is happening in the statewide Extension organization. Therefore, it appears Regional Extension Coordinators play a significant role in the organization’s internal communication structure. State-level administration should strive to keep the Regional Extension Coordinators updated, and their accessibility to county agents should be prioritized to improve the diffusion of statewide information. Putnam (2000) and Rogers (2003) noted that an overdependence on homogenous networks stifles information sharing.

The findings from this study suggest that the social capital of MSU Extension agents could be more fully developed. Relatively low levels of engagement in the professional associations were observed, particularly at the national level. Encouraging agents to become more involved in their state-level associations through service on committees or in elected roles would be expected to strengthen their levels of bonding capital, because of the increased engagement within a homogenous group (Putnam, 2000).

Further, agents would likely benefit from the opportunity to expand their networks or access new ones to build bridging capital. Engagement at the national ESP and NAEPSDP conferences would help an agent do this through interaction with Extension professionals across program areas. Differences in state Extension systems, from resources to organizational structure to programming priorities, means state programs are unique and not homogenous. Therefore, even attending national-level events for a programmatic association (e.g., NEAFCS, NACAA, NAE4-HA) would provide an opportunity for agents to build bridging capital. Adjustments to how agents are annually evaluated and/or increases in the amount of professional development funding available for out-of-state travel may be needed to support these changes. If prioritized, even states with limited budgets may be able to increase funding for out-of-state travel by reallocating funds from other uses, negotiating to increase county-level funding, or enabling agents to procure their own funds through program revenue (beyond cost recovery).
Further, MSU Extension should focus on increasing interaction between its employees in-state, including improving communication between agents who work within the same counties. Agents in the same county seldom sought each other out for job-related or statewide Extension information nor did most of them choose to socialize together at statewide events. Although this reported lack of interaction may be due in part to several budget-related vacancies in many Mississippi counties at the time this study was conducted, more research is needed to explore the influence of intracounty relationships on the development of social capital, why intracounty relationships were not more valued as information sources, and what barriers may prevent these types of relationships from developing.

This study offered some insight into what type of social capital an agent is most likely to possess based on his or her programmatic role(s). Future replication of this study is needed to test the validity of these early conclusions both within MSU Extension and externally in other state Extension systems. Employing qualitative research techniques would be useful to provide a deeper explanation of observed trends. With continued research, Extension will be able to make data-driven decisions that best position agents to develop the social capital they need to thrive within the organization.

References


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The Relationship between Student Admissions Data and Six-Year Degree Completion

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University of Arkansas

Leslie D. Edgar  
University of Georgia

Donald M. Johnson  
University of Arkansas

This study examined the six-year bachelor’s degree graduation status of freshmen (N = 1,839) entering the Dale Bumpers College of Agricultural, Food and Life Sciences (AFLS) between 2001 and 2010. The overall graduation rate was 64%, including 23% who had transferred out of AFLS. Multinomial logistic regression was used to determine if student entry data differentiated between graduates and non-graduates and between AFLS and non-AFLS graduates. High school GPA (HSGPA), first-generation status, and year of admission to the university significantly (p < .001) differentiated between graduates and non-graduates. Each standard deviation increase in HSGPA was associated with a 224% increase in the relative odds of graduating. Students entering each subsequent year had a 10% increase in the relative odds of graduating. Being a first-generation student decreased the relative odds of graduating by 52%. Year, major (agriculture or human environmental sciences), and composite ACT score (CACT) significantly (p < .001) differentiated between AFLS and non-AFLS graduates. Students entering each subsequent year had a 16% increase in the relative odds of being AFLS graduates, while agriculture majors were about twice as likely to be AFLS graduates. Each standard deviation increase in CACT score was associated with a 26% decrease in the relative odds of being an AFLS graduate.

Keywords: ACT score, college students, graduation rates, high school GPA, student retention

Introduction

The need for more graduates with degrees in agriculture, food, and natural resources (AFNR) has been well documented. In 2015, the USDA released figures showing an estimated 34,500 AFNR graduates available each year to fill 57,900 annual AFNR job openings, resulting in a 40% annual shortage of graduates (Goecker, Smith, Fernandez, Ali, & Theller, 2015). In 2009, the
National Research Council called for changes in higher education to reduce the shortage of qualified AFNR graduates. In 2014, the STEM Food and Ag Council sounded the alarm again, “We are not producing nearly enough . . . professionals to meet industry demand—which continues to grow year after year” (p. 9). In 2016, the American Association of Agricultural Educators (AAAE) stated in its National Research Agenda, “The range of issues and subject matters important to agriculture has broadened, and the educational system to provide skilled individuals to fill the needed occupations has scrambled to keep pace” (Roberts, Harder, & Brashears, 2016, p. 30). While recruitment efforts have assisted in reducing the gap between workforce needs and available human capital (Roberts et al., 2016), stalled graduation rates continue to temper increases in recruitment (NRC, 2009). The number of students recruited to pursue AFNR degrees has increased. However, “The number of students earning degrees in agriculture has been relatively stable since 2000” (NRC, 2009, p. 26). Efforts to understand the gap between enrollment in AFNR degree programs and graduation from AFNR degree programs can assist institutions of higher education in taking action to improve graduation rates.

The reasons students choose to depart from their initial majors or institutions are numerous. Tinto’s (1993) theory of student departure posits that student characteristics determined before college, such as gender, race, parental education, socioeconomic status, high school achievement, and standardized test scores, interact with the social and academic systems of an institution. These interactions, occurring via the student’s day-to-day experiences, ultimately lead to the student’s decision to remain enrolled until graduation or leave the institution. In four-year institutions with more than one college, the college in which a student is enrolled can impact his or her experiences, which then interacts with his or her pre-college characteristics (Wohlgemuth et al., 2007). An examination of how each of these pre-college factors influences AFNR students’ likelihood to graduate can shape university retention efforts to mitigate the effects of specific factors that put students at-risk of dropping out (Astin & Oseguera, 2005; DeAngelo, Franke, Hurdado, Pryor, & Tran, 2011).

Identifying variables predicting college graduation has been the subject of numerous studies, some with conflicting findings. In 2005, Astin and Oseguera studied graduation rates from 3,700 four-year institutions and found that 57.6% of freshmen had earned a bachelors’ degree within six years. DeAngelo et al. (2011) found that the six-year graduation rate had increased to 61.2% and that women graduated at a higher rate (63.6%) than did males (58.1%). They also found that first-generation college students graduated at a lower rate (50.2%) than other students who had at least one parent who had attended college (64.2%) and that students with higher high school GPAs and higher standardized test scores were more likely to graduate than their less academically prepared peers.

Wohlgemuth et al. (2007) found that females, students receiving financial aid, and students entering the College of Agriculture were more likely to graduate within six years with a
bachelor’s degree from Iowa State University. The researchers found that while ACT scores predicted four-year graduation rates, they did not predict five- or six-year graduation rates.

Pike, Hansen, and Childress (2014) sampled 4,006 students at one Midwestern institution, examining their pre-college characteristics and degree status. They found that first-generation students were less likely to have graduated within six years of initial enrollment. Students with higher SAT scores and those with higher high school class percentile ranks were more likely to have graduated within six years.

Stebleton and Soria (2013) examined self-perceived academic obstacles encountered by first-generation college students at six large, public research universities. First-generation students rated job, family, and other responsibilities; weak English, math, and study skills; and feelings of depression or stress as significantly higher obstacles to graduation than did non-first-generation students. In addition, Oldfield (2007) posited that first-generation students bridge two cultures and often find higher education to be “a rarified and often mystifying culture” (p. 2) with unfamiliar customs, rules, and values. Oldfield (2007) recommended increased institutional efforts to assist first-generation students in acquiring the cultural capital necessary for academic and social success.

Mau (2016) tracked 71,405 students in a Midwestern state pursuing degrees in science, technology, engineering, or math (STEM) for five years to identify characteristics that led to degree attainment. The five-year graduation rate within the STEM degree programs was 19.2%. Males graduated at a significantly higher rate than females. Additionally, significantly more transfer students completed degrees than first-time freshmen. Ethnicity, ACT score, and high school GPA significantly predicted STEM degree completion.

The percentage of out-of-state freshmen entering the University of Arkansas increased from 30.5% in 2006 to 52.3% in 2016 (University of Arkansas, n.d.a). Previous research indicates out-of-state students were less likely to be retained, because of a propensity to transfer to institutions in their home states (Campbell & Mislevy, 2013). Thus, student residency classification (in-state vs. out-of-state) was included as a potential predictor in this study.

The University of Arkansas has a longstanding goal of increasing its six-year graduation rate (Hale, Graham, & Johnson, 2009), with a current goal of improving from 62.5% in 2015 to 70% by 2021 (Jones, 2015). The university’s six-year graduation rate increased by approximately 0.78% per year between 1998 and 2010 (University of Arkansas, n.d.b). Because the university goal is incremental improvement in graduation rates over time, year of admission was included as a potential predictor of six-year graduation.

The Dale Bumpers College of AFLS has contributed to this overall growth with an overall graduation rate increase of 15.9%. The college houses majors in the agricultural disciplines, as well as a School of Human and Environmental Sciences (HES), leading to the convergence of
two student groups within one college. Johnson, Shoulders, and Edgar (2018) found that HES students comprised approximately one-third of AFLS enrollment, and that while females constituted slightly over half of the agriculture majors, they made up 94% of the HES majors. Additionally, they found that HES students were 39% more likely to transfer out of AFLS as sophomores than were agriculture students. The differences between these two groups of students warrant examination of majoring in either HES or agriculture as a predictor of six-year graduation rate.

This study was conducted as part of the university effort to assess annual progress toward its retention and graduation goals. By tracking six-year graduation rates of AFLS students by year of admission and identifying factors associated with graduation versus non-graduation, the Dale Bumpers College of AFLS can both assess its contribution to the university’s six-year graduation goals and tailor intervention efforts to meet the needs of students at risk of non-graduation. Factors examined as potential predictors of six-year graduation rate included year of admission (Jones, 2015), high school GPA (DeAngelo et al., 2011; Mau, 2016), composite ACT score (Mau, 2016), gender (Mau, 2016; Wohlgemuth et al., 2007), major, Pell Grant eligibility ([as students eligible for Pell Grants have an established financial need] Wohlgemuth et al., 2007), residency (Campbell & Mislevy, 2013), and first-generation college student status (Pike et al., 2014).

**Purpose and Objectives**

The purpose of this study was to determine if university admissions data could be used to predict six-year graduation for first-time, full-time freshmen enrolling in the Dale Bumpers College of Agricultural, Food and Life Sciences (AFLS) at the University of Arkansas from 2001 to 2010. Specific objectives were to:

1) Determine the six-year degree status (graduated, enrolled, or not enrolled) of first-time, full-time freshmen admitted to the AFLS from 2001 to 2010;
2) Determine if selected variables (year of admission, high school GPA, composite ACT score, gender, major, Pell Grant eligibility, residency, and first-generation college student status) could differentiate between students graduating (in any major) and students not graduating from the University of Arkansas for first-time, full-time freshmen entering AFLS from 2001 to 2010; and
3) Determine if selected variables (year of admission, high school GPA, composite ACT score, gender, major, Pell Grant eligibility, residency, and first-generation college student status) could differentiate between AFLS graduates and non-AFLS graduates for first-time, full-time freshmen entering AFLS from 2001 to 2010.
Methods

The population for this study included all AFLS students entering a land-grant university as new, first-semester, full-time freshmen \((N = 1,839)\) from 2001 to 2010. After institutional IRB approval, the Office of Institutional Research (OIR) provided the researchers with a data file containing the following admissions data for each student: year of admission, high school GPA (HSGPA), composite ACT score (CACT), major (categorized as human environmental sciences or agriculture), Pell Grant eligibility, and first-generation college student status. The OIR also supplied matched data for each student’s sixth-year graduation outcome (graduated; enrolled, but not graduated; or not enrolled) and the student’s undergraduate college (for graduates and currently enrolled students) or the last college of enrollment (for students no longer enrolled). Complete admissions data were available for 1,672 (90.9%) total students and for 1,176 (92.0%) of the 1,272 students who graduated in six years. Descriptive statistics are reported for all \((N = 1,839)\) students. Logistic regression models were based on complete cases after removal of outliers and leverage points. The dataset was deemed valid and reliable because it consisted of official university records supplied by the OIR.

Descriptive statistics and logistic regression were used to analyze the data. According to Peng, Lee, and Ingersoll (2002), “Logistic regression is well suited for describing and testing hypotheses about relationships between a categorical outcome variable and one or more categorical or continuous predictor variables” (p. 4). To meet the study objectives, two logistic regression models were estimated. The first model sought to identify variables differentiating between six-year graduates and non-graduates. The second model sought to differentiate between sixth-year AFLS graduates and students transferring to and graduating from other undergraduate colleges at the university (non-AFLS graduates).

Prior to logistic regression analyses, the continuous variables (CACT and HSGPA) were converted to \(z\) scores as recommended by Osborne (2015). Year of admission (Year) was converted to a 10-point basis \((2001 = 1 \text{ to } 2010 = 10)\). Values for all binary categorical variables were coded as either zeros or ones (Table 1).

<table>
<thead>
<tr>
<th>Table 1. Variable Coding for Logistic Regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Major</td>
</tr>
<tr>
<td>Pell Grant eligible</td>
</tr>
<tr>
<td>First-generation college student</td>
</tr>
<tr>
<td>Arkansas resident</td>
</tr>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>HSGPA</td>
</tr>
<tr>
<td>CACT</td>
</tr>
<tr>
<td>Year of admission</td>
</tr>
<tr>
<td>Six-year graduation status</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>College of graduation</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The assumptions of logistic regression differ from those of ordinary least squares (OLS) regression. Logistic regression, a non-parametric method, does not require the OLS assumptions of linearity, normality, and homoscedasticity (Osborne, 2015). The two primary assumptions of logistic regression are independence of error terms and linearity of continuous independent variables and log odds (Peng et al., 2002). Independence of error terms was assumed because each observation in the dataset represented one unique student. Linearity of the three continuous independent variables (HSGPA, CACT, and year of admission) and their respective log odds was assessed using procedures recommended by Field, Miles, and Field (2012). The results indicated the linearity assumption was not violated.

The dataset was examined for outliers and leverage points by plotting and testing the significance of the standardized residuals as recommended by Osborne (2015). Sixty-six observations (3.4%) were removed from the dataset leaving 1,606 observations for analysis. Analysis of the deleted observations indicated these students were primarily a unique subgroup of non-graduates, characterized by above-average CACTs ($z = 0.35$) and HSGPAs ($z = 0.87$).

**Results**

Of the 1,839 new, first-semester freshmen entering AFLS from 2001 to 2010, a majority were female (69.0%) and had majors in agriculture (62.1%), as opposed to human environmental sciences (37.9%). Females comprised a slight majority (53.2%) of agriculture majors and the vast majority (94.7%) of human environmental sciences majors.

About one-fourth of freshmen were from out-of-state (23.3%) and were first-generation college students (24.0%). Almost one-fourth of freshmen were first-generation college students (24.0%), and almost one-fifth were eligible for Pell grants (19.1%). The students had a mean HSGPA of 3.55 ($SD = 0.44$), with a range of 1.42 to 5.0. HSGPAs greater than 4.0 were due to schools’ use of weighted GPA calculations. The mean CACT score was 24.70 ($SD = 3.71$), with a range of 15.0 to 35.0.

For new, first-semester freshmen entering AFLS between 2001 and 2010, the overall six-year graduation rate was 64.0% (Table 2). Over one-third (36.2%) of these graduates had transferred out of AFLS and graduated from other colleges. Of the remaining students, 44 (2.4%) were still...
enrolled as undergraduates, and 619 (34.7%) had not received a degree and were not enrolled six years after entering AFLS as freshmen.

Table 2. Overall Six-Year Retention and Graduation Rates for New Freshmen, 2001 to 2010

<table>
<thead>
<tr>
<th>Outcome</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduated (total)</td>
<td>1176</td>
<td>64.0</td>
</tr>
<tr>
<td>AFLS</td>
<td>750</td>
<td>40.8</td>
</tr>
<tr>
<td>Non-AFLS</td>
<td>426</td>
<td>23.2</td>
</tr>
<tr>
<td>Enrolled (total)</td>
<td>44</td>
<td>2.4</td>
</tr>
<tr>
<td>AFLS</td>
<td>18</td>
<td>1.0</td>
</tr>
<tr>
<td>Non-AFLS</td>
<td>26</td>
<td>1.4</td>
</tr>
<tr>
<td>Not enrolled (total)</td>
<td>619</td>
<td>33.7</td>
</tr>
</tbody>
</table>

Overall, six-year graduation rates trended upward for new freshmen entering AFLS from 2001 to 2010, increasing from 58.8% to 67.5%. Year of admission had a moderate correlation (Davis, 1971) with six-year graduation rates \( (r = .34) \). Because of this relationship, year of admission was retained as a potential predictor in logistic regression analyses.

The correlations between year of admission and HSGPA \( (r = .01) \) and CACT \( (r = .06) \) were negligible (Davis, 1971). The point-biserial correlations between year of admission and gender \( (r_{pb} = -.01) \), Pell grant eligibility \( (r_{pb} = .01) \), and majoring in agriculture were negligible \( (r_{pb} = -.10) \), while the correlations between year of admission and in-state status \( (r_{pb} = -.14) \), and first-generation status \( (r_{pb} = .17) \) were low (Davis, 1971).

Model 1: Graduates (Any Major) vs. Non-Graduates

The first stepwise logistic regression model compared students graduating in six years in any major (graduates, \( n = 1,078 \)) with students not graduating in six years (non-graduates, \( n = 528 \)), including students still enrolled. Graduates were entered as the reference group in this analysis. Thus, positive logistic regression coefficients and odds ratios \( (ORs) \) greater than one for a specific variable indicated that increases in the variable were associated with increased odds of being a graduate as opposed to being a non-graduate, with all other variables held constant. Negative coefficients and \( ORs \) less than one indicated that increases in the variable were associated with decreased relative odds of being a graduate.

The global null hypothesis that no logistic regression coefficient was significantly different from zero was rejected, \( \chi^2(2) = 356.18, p < .001, \text{ pseudo-}R^2 = .29 \). Three variables entered into the model were significant at the .001 alpha level: HSGPA, first-generation student status, and year of admission (Table 3).
Table 3. Results of Stepwise Logistic Regression Analyses Predicting Six-Year Graduation, Any Major, 2001 to 2010

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Cumulative Pseudo-$R^2$</th>
<th>$\beta$ (SE)</th>
<th>Odds Ratio</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td>0.55 (0.15)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSGPA$^a$</td>
<td>.26</td>
<td>1.18 (0.07)***</td>
<td>3.24</td>
<td>2.81</td>
<td>3.74</td>
</tr>
<tr>
<td>First-generation student</td>
<td>.28</td>
<td>-0.74 (0.14)***</td>
<td>0.48</td>
<td>0.36</td>
<td>0.63</td>
</tr>
<tr>
<td>Year of admission</td>
<td>.29</td>
<td>0.09 (0.02)***</td>
<td>1.10</td>
<td>1.05</td>
<td>1.15</td>
</tr>
</tbody>
</table>

Note: $^a$Converted to $z$ scores. $^b$Coded as no = 0 and yes = 1. $^c$Coded as 2001 = 1 to 2010 = 10. *$p$ < .05, **$p$ < .01, ***$p$ < .001.

HSGPA was the first predictor to enter into the equation, resulting in a pseudo-$R^2$ of .26. The OR of 3.24 indicated each one standard deviation ($z = 1.0$) increase in HSGPA was associated with a 224% increase [(OR - 1) * 100] in the odds of being a graduate as compared to a non-graduate. First-generation entered second, with a negative regression coefficient and a pseudo-$R^2$ increase of .02. The OR of 0.48 indicated that being a first-generation college student decreased the relative odds of being a graduate by 52% [(OR - 1) * 100]. Year of admission was entered last and provided a pseudo-$R^2$ increase of .01. The OR of 1.10 indicated students entering in each subsequent year had a 10% increase in the relative odds of being a graduate as compared to students entering in the previous year.

The logistic regression model consisting of these three predictors correctly classified 73.8% of all observations into their correct six-year outcome (graduate or non-graduate), Somers $D = .55$. The model was more accurate in predicting graduates (89.1% correct) than in predicting non-graduates (42.6% correct).

Model 2: AFLS Graduates vs. Non-AFLS Graduates

Of the 1,078 graduates, 63.8% graduated from AFLS (AFLS graduates), while 36.2% had transferred and graduated from a different college (non-AFLS graduate) at the University of Arkansas. The second stepwise logistic regression analysis was conducted to determine if the predictor variables could differentiate between these two groups. AFLS graduates were used as the reference group, so, again, positive regression coefficients and ORs greater than one indicated increases in the predictor variables were associated with increased odds of being an AFLS-graduate as opposed to a non-AFLS graduate, with all other variables held constant.

The global null hypothesis that no logistic regression coefficient was significantly different from zero was rejected, $\chi^2(1) = 34.16, p < .001$, pseudo-$R^2 = .09$. Three variables entered into the model and were significant at the .001 alpha level: year of admission, major, and CACT (Table 4).
Table 4. Results of Stepwise Logistic Regression Analyses Predicting Six-Year AFLS vs. Non-AFLS Graduates

<table>
<thead>
<tr>
<th></th>
<th>Cumulative Pseudo-$R^2$</th>
<th>β (SE)</th>
<th>Odds Ratio</th>
<th>CI95 for Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.69 (0.18)***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year of admission$^a$</td>
<td>.04</td>
<td>0.14 (0.02)***</td>
<td>1.16</td>
<td>1.10 1.21</td>
</tr>
<tr>
<td>Major$^b$</td>
<td>.07</td>
<td>0.78 (0.14)***</td>
<td>2.19</td>
<td>1.66 2.88</td>
</tr>
<tr>
<td>CACT$^c$</td>
<td>.09</td>
<td>-0.31 (-0.07)***</td>
<td>0.74</td>
<td>0.64 0.84</td>
</tr>
</tbody>
</table>

Note: $^a$Coded as 2001 = 1 to 2010 = 10. $^b$Major coded as 0 = human environmental sciences and 1 = agriculture. $^c$Converted to z scores. *p < .05, **p < .01, ***p < .001.

Year of admission was the first predictor to enter into the equation, resulting in a pseudo-$R^2$ of .04. The OR of 1.16 indicated each subsequent year of entry increased the relative odds of being an AFLS graduate by 16% over graduates entering in the previous year. Major entered second resulting in a pseudo-$R^2$ increase of .03. Students entering AFLS as agriculture majors were slightly more than twice as likely (OR = 2.19) to be AFLS graduates as were students entering as human environmental sciences majors. CACT entered last, with a negative regression coefficient, and resulted in a pseudo-$R^2$ increase of .02. The OR of 0.74 indicated a one SD ($z = 1.0$) increase in CACT was associated with a 26% decrease in the relative odds of being an AFLS graduate.

The logistic regression model consisting of these three predictors correctly classified 65.5% of all graduates into the correct category (AFLS graduate or non-AFLS graduate), Somers’ $D = .32$. The model correctly predicted 67.3% of AFLS graduates and 54.8% of non-AFLS graduates, showing a predictive bias in favor of AFLS graduates.

Discussion and Summary

Tinto (1993) and Wohlgemuth et al. (2007) outlined the importance of understanding how student characteristics and college experiences influence student success. This study examined the six-year graduation status of new, first-semester freshmen ($N = 1,839$) entering a land-grant university’s College of Agricultural, Food, and Life Sciences (AFLS) between 2001 and 2010. Overall, six-year graduation rates trended upward about 10% for new freshmen entering AFLS majors within the ten years included in this study. Year of admission had a moderate positive correlation (Davis, 1971) with six-year graduation rates. The overall graduation rate for students was 64%, including 23% who had transferred out of AFLS.

Findings indicated that high school GPA, first-generation student status, and year of admission were significant predictors of six-year graduation rate. Students with higher GPAs were more likely to graduate, as were students who were admitted later (each subsequent year increasing the likelihood of graduating by 10%); conversely, being a first-generation college student decreased the relative odds of graduating by 52%.
These findings lead to two divergent strategies for improving six-year graduation rates: improved students or improvements within the university. The first strategy is to emphasize the recruitment of high-GPA freshmen with college-educated parents who are most likely to graduate. Such an approach would focus on increasing the quality of entering students and less on improvement of the college and university into which these students enter. The second strategy is more difficult but more consistent with this university’s land-grant mission. This strategy would entail using these results to identify and provide additional academic assistance and needed services to lower-GPA and first-generation students designed to help overcome potential barriers to graduation. Emphasis on this strategy would necessarily focus on improvements within the college and university, so these students are better served.

Student services are currently available at this land-grant university within both AFLS and the overall university to assist students with academic, study, and time-management issues. Thus, efforts in this area should focus on better identifying students who can benefit from these services and motivating them to participate. However, few if any formal services are available specifically designed to assist first-generation students in developing the cultural capital (Oldfield, 2007) necessary for both academic success and social integration into the college and university. Development of effective student services for first-generation students should be a priority for both AFLS and the university.

Findings also indicated that agriculture majors were slightly more than twice as likely to graduate from AFLS as students who entered as HES majors. Students entering the university as HES majors were more apt to transfer to a different major outside AFLS and graduate from a different college within the university. Additionally, students who were admitted to the university later were more likely to graduate from AFLS, with each subsequent year increasing the likelihood by 16%. Alternately, students with higher CACT scores were 26% less likely to graduate from AFLS but instead graduated from a different college within the university.

Although the specific reasons agriculture majors were more likely than human environmental sciences majors to graduate from AFLS could not be determined from the data, the authors posit this may be a result of agriculture students’ backgrounds and self-identity with agriculture and rural life (Shoulders & Myers, 2011). Additional research in this area is definitely warranted, as the potential for HES students to feel “out of place” within a college of AFLS may contribute to their greater likelihood to pursue other majors. In the meantime, human environmental sciences faculty and administrators should open a dialogue with undergraduate students to identify factors related to their increased likelihood to transfer out of AFLS.

The finding that students with higher CACT scores were relatively more likely to be non-AFLS graduates also warrants further study. Future research should focus on why these students leave AFLS and into which colleges and majors they transfer. In the meantime, AFLS faculty and administrators should more fully engage these students in the college honors program, with
faculty mentors, and in undergraduate research experiences in an effort to retain these high-ability AFLS students (Edgar, Whitehead, & Davis, 2017).

Residency was not a significant predictor of six-year degree completion or completion of an AFLS degree; both Arkansas and non-Arkansas students were equally likely to graduate and to receive AFLS degrees. This is an important finding, given the increasing percentage of out-of-state freshmen entering the University of Arkansas.

Improving six-year graduation rates has been a longstanding priority for both the university and for AFLS (Hale et al., 2009). These results indicate relative year-to-year improvements in both overall six-year graduation rates and AFLS-retained graduation rates over the ten-year period, despite relatively little change in either HSGPA or CACT scores. Edgar, Johnson, Graham, and Dixon (2014) reported no significant changes in selected AFLS course GPAs between 2000 and 2012, providing some evidence that increased graduation rates were not due to grade inflation. Thus, current university and AFLS retention efforts appear to be working without changes in student academic characteristics or achievement.

Although the results of this study are generally consistent with findings from previous studies (DeAngelo et al., 2011; Mau, 2016; Pike et al., 2014; Wohlgemuth et al., 2007), caution should be exercised in generalizing these results to other students and universities. Other researchers are encouraged to conduct similar studies at their own universities to determine specific factors identifying students potentially at-risk for non-retention. Subsequent meta-analysis of a group of similar studies could potentially yield a generalizable set of predictor variables capable of identifying students at-risk of dropping out of AFNR programs.

Concerns regarding the need for increased graduates with degrees in agriculture, food, and natural resources (AFNR) and STEM fields have been well documented (NRC, 2009; Roberts et al., 2006; Goecker et al., 2015). This research was an attempt to identify specific characteristics of students entering AFLS and their relationship to six-year degree completion. Through a better understanding of how pre-college factors influence AFLS students’ likelihood to graduate, college and university retention efforts can be directed toward the students most needing these services (Astin & Oseguera, 2005; DeAngelo et al., 2011; Mau, 2016; Pike et al., 2013; Wohlgemuth et al., 2007).

References


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Cattle Producers and Climate Change Conversations: Assessing Workshop Effectiveness in Preparing Communicators to Discuss a Contentious Scientific Topic

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Climate change and the resulting impacts on agriculture in the United States, specifically cattle production, are of great concern to educators in Extension and other organizations. Extension has used a deficit model of communication to extend research information to audiences with the goal of changing behavior by simply providing information. Dialogic models that utilize two-way communication have proven to be more effective when communicating about contentious scientific issues. This study examined the effectiveness of a one-day workshop, focused on cattle production and climate change, on increasing attendees’ level of comfort when talking about climate change with their clientele. Attendees indicated the workshop increased their level of comfort in facilitating the application of research, hosting programs, and delivering presentations that cover the topic of climate change. Sessions that focused on climate data, trending data over time, and manipulations of data were most beneficial. Making workshop content personally relevant to the attendees’ professions increased their comfort with material and their ability to share knowledge with cattle producers. Delivery of the material was also a very important factor in preference for the sessions. Future workshops should incorporate dialogue training and role-play, so educators will feel more prepared to discuss climate change with their clientele.

Keywords: climate change, dialogic communication, cattle production, scientific communication

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Introduction and Theoretical Framework

Extension educators have been tasked with the challenge of providing research-based information to a wide variety of audiences, including agricultural producers, on controversial or contentious topics (Smith & Mukhtar, 2015), such as climate change. Climate change is expected to significantly affect food systems, including crop and livestock production (Porter et al., 2014). However, producers think about climate change and the potential risks associated with climate change in different ways, including some who believe that climate change is not happening (Arbuckle et al., 2014) in spite of a 90%-100% scientific consensus that anthropogenic (human-caused) climate change is occurring (Cook et al., 2016). While views of climate change may vary among producers, Diehl et al. (2016) suggested producers might be receptive to messages about climate change when approached with tailored messages that fit the characteristics and beliefs of the audience. Extension educators should understand farmer perspectives and needs regarding developing effective Extension and outreach material for producers (Arbuckle et al., 2014). Additionally, Jones and Lenart (2014) found significant differences in the perception that climate change is anthropogenic among professional research and Extension personnel, landowners, and private companies. This finding suggests a need to further explore the beliefs of Extension personnel concerning climate change and their perceived level of responsibility and comfort to effectively communicate the topic to their clientele.

Traditional models of information exchange between Extension professionals and the producers they serve have followed a largely effective deficit model of communication (Leeuwis, 2004). Deficit models of communication are based on the presumption that by simply providing knowledge and information to the public, deficits in their knowledge can be filled (Brossard & Lewenstein, 2010). Within Cooperative Extension Services, the deficit model has been used to communicate information and technologies, developed by scientists and researchers, to farmers and ranchers by Extension outreach professionals (Leeuwis, 2004). The Extension model of deficit communication assumes that farmers and ranchers are passive recipients of information (Leeuwis, 2004) and has previously been successful in the transfer of profit-based agronomic information and innovation (Ruttan, 1996).

A deficit model of communication is less effective in communicating information on contentious science topics (Gross, 1994), such as climate change, than traditional profit-based information (Ruttan, 1996). It has been suggested that dialogic models, similar to those emerging in the engagement of the general public in climate change dialogue and other contentious issues (National Academies of Sciences, Engineering, and Medicine, 2017), can be effective in involving producers in two-way communication models to address adaptive needs and mitigation strategies with farmers and ranchers (Leeuwis, 2004). James, Estwick, and Bryant (2014) suggested that the most effective way to engage producers is through personal contact with Extension – “agents must possess good communication and interpersonal skills, be persuasive and tactful, and have a keen interest and knowledge of farming and the environment” (p. 4).
Learning theory has shown that people learn facts best when the material is personally relevant (Bransford, Brown, & Cocking, 2000). To engage audiences effectively, Extension educators should consider their audience and adapt their messages accordingly (Morris, Megalos, Vuola, Adams, & Monroe, 2014). An important factor in introducing dialogic communication models into Extension is to deliberately connect individuals with differing beliefs, knowledge, and skills, connected by a common shared interest. By creating collaborative spaces for producers to learn from their peers, scientists, and educators, Extension professionals can effectively engage producers in conversations about climate change (Arbuckle et al., 2014).

Recognizing a need for dialogic communication models in Extension (Gay, Owens, Lamm, & Rumble, 2017; Harder, Lamm, & Strong, 2011) and a perceived lack of adequate training on climate change topics (Becerra, Middendof, Campbell, & Tomlinson, 2016; Whitefield et al., 2016; Prokopy et al., 2015; Rogers, 2003), day-long workshop trainings were developed as part of the Animal Agriculture in a Changing Climate (AACC) project, funded by the United States Department of Agriculture (USDA). The project sought to influence cattle and poultry producers to make decisions that result in reduced greenhouse gas emissions while maintaining or increasing America’s production levels of meat, milk, eggs, and other animal products. Dilling and Berggren (2014) suggested that stakeholders need “additional data and research, improved communication and coordination among data and information providers, education of their various publics, and changes to policy and legal frameworks to better manage under a changing climate” (p. 1). The needs expressed were in the context of attempting to access expected impacts, characterize current and future vulnerability, and manage for future change (Dilling & Berggren, 2014). Becerra et al. (2016) suggested that Extension educators lacked experience on climate change topics, especially regarding drought and related management practices. Educators also indicated they wanted additional educational resources, including print and online decision aids (Becerra et al., 2016).

Evaluation of training and programming is an essential aspect of implementing a dialogic communication model in Extension. Evaluation is most effective with Extension personnel when the data are used to assess the needs and interests of stakeholders or for future programmatic planning (Lamm & Israel, 2013). To assess future needs and develop a model of dialogic communication, programming surrounding climate change conversations should be examined.

**Purpose and Objectives**

The purpose of this study was to examine the effectiveness of the *Cattle and Climate Conversations Workshop* in increasing Extension agents’ comfort in communicating with cattle producers about climate change. Determining the current level of comfort and taking steps to increase agent willingness to discuss climate change are the needed first steps in developing a dialogic model of communication on climate change. As identified in the literature, Extension
agents identified a lack of training on climate change topics as a barrier to productive conversations with their audiences about mitigating or adapting to the effects of climate change (Becerra et al., 2016; Prokopy et al., 2015; Rogers, 2003). The workshop included Extension agents and Natural Resources Conservation Service (NRCS) personnel from the top three states in cattle production respectively, including Texas, Nebraska, and Kansas (National Cattlemen’s Beef Association, 2017). Agents from New Mexico, Oklahoma, Colorado, Wyoming, and Washington, other top cattle-producing states, were also in attendance at the workshop. The end goal of this workshop was to produce effective agent communication and outreach that promotes practices that are environmentally sound, climatically compatible, and economically viable. To assess the effectiveness of the workshop, two research objectives were developed:

1) Determine if the workshop increased attendees’ comfort level in communicating climate change materials, and
2) Describe which sessions and topics attendees found most beneficial.

Methods

An online survey was distributed to the 35 participants in the *Cattle and Climate Conversations Workshop*, part of the USDA NIFA-funded AACC project. Of the 35 invited, 27 workshop attendees participated in the post-workshop survey for a response rate of 77.1%. Respondents to the survey were not forced to answer items to increase participant comfort while responding to a contentious scientific topic. As a result, not all respondents answered each question throughout the survey. The purposive sample included Cooperative Extension Service agents and NRCS personnel, including research scientists, rangeland managers, soil scientists, air quality engineers, a plant materials center manager, and other federal government positions. Attendees of the workshop served cattle production clients in the Southwest and Mountain West regions of the United States. While the sample size and sampling method are limitations in generalizing the research to a larger population, the findings contribute to the body of research examining climate change education and workshop effectiveness.

The survey instrument was adapted from a previous assessment tool used to evaluate a similar workshop in the AACC project (Bureau of Sociological Research, 2014). A panel of experts reviewed the instrument for face and content validity. The panel included the director of the Public Issues Education Center, an associate dean for Extension and Agriculture Programs at the University of Florida, the principle investigator of the Southwest Region Animals Agriculture and Climate Change Project, the education coordinator of Public Issues Education Center, and a research coordinator of Public Issues Education Center who has a background in climate change communication strategies and programming. Following final approval of the instrument, institutional review board approval was received.

Attendees of the workshop were made aware they would be receiving an email invitation to participate in the post-workshop survey. A response rate of 77.1% was achieved in an invitation,
reminder, and final reminder method suggested by Dillman, Smyth, and Christian (2014) to increase response rates. The first email invitation was sent the evening the workshop concluded, with subsequent email reminders sent two and four weeks after the workshop.

The survey adapted for this study contained a total of twenty items. Attendees were asked to rate their level of comfort before and after the workshop on three items for facilitating the application of university research, hosting programs in their respective counties or regions, and delivering presentations on climate change, for a total of six items on comfort. Responses were on a five-point Likert-type scale with 1 = extremely uncomfortable, 2 = somewhat uncomfortable, 3 = neither comfortable or uncomfortable, 4 = somewhat comfortable, and 5 = extremely comfortable. Comfort variables were averaged into an overall comfort variable for before and after the workshop with Cronbach’s alpha scale reliability of .92 and .79, respectively.

Attendees were also asked to rate the level of benefit they found in each workshop session on a sliding, semantic differential scale from 0 = not beneficial at all to 4 = extremely beneficial. Each of the six sessions was measured as an individual survey item, with an additional item asking about the overall benefit of the workshop. Sessions covered a variety of topics related to climate change, including roles and responsibilities of Cooperative Extension and NRCS, an examination and explanation of historical climate data and future trend data, predicted vulnerabilities of cattle production on U.S. rangelands, climate change adaption and mitigation strategies, mitigation of climate change in confinement operations, and a facilitated discussion focused on how attendees were currently discussing climate change with clientele. The sessions were intended to equip attendees with the necessary knowledge and experience (Becerra et al., 2016) to have dialogic conversations with their clientele. Additionally, session content encouraged participants to consider ways in which the content could be integrated into dialogic models of communication. Sessions were presented through a variety of methods including presentation, discussion, and hands-on demonstrations. Additionally, the data and information presented focused on the Southwest and Mountain West regions where Extension agents and NRCS personnel resided and worked.

After rating the perceived level of benefit for each of six sessions, attendees were given the opportunity to provide open-ended responses as to why they found the session to be beneficial or not. Attendees were also asked to provide open-ended responses as to what training and materials they thought they still needed to communicate about climate change. Data were analyzed in SPSS 24.

**Results**

When asked to rate their level of comfort facilitating the application of university research that deals with climate change, nine attendees indicated that before attending the workshop they were extremely or somewhat uncomfortable, and eleven were somewhat or extremely comfortable (Table 1). Thirteen attendees indicated that before attending the workshop, they were extremely
or somewhat uncomfortable hosting programs that deal with climate change, and eight indicated they were somewhat or extremely comfortable. Nine attendees were somewhat or extremely comfortable delivering presentations on climate change, while fourteen indicated they were extremely or somewhat uncomfortable delivering presentations on climate change.

Table 1. Comfort Presenting Climate Change Information Before the Cattle and Climate Conversations Workshop

<table>
<thead>
<tr>
<th>(n = 27)</th>
<th>Extremely uncomfortable</th>
<th>Somewhat uncomfortable</th>
<th>Neither comfortable nor uncomfortable</th>
<th>Somewhat comfortable</th>
<th>Extremely comfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitating</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Hosting</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Delivering</td>
<td>7</td>
<td>7</td>
<td>4</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

After considering and rating their level of comfort before attending the workshop, attendees were asked to rate their level of comfort presenting climate change information after going through the workshop. After the workshop, 16 attendees rated themselves as being somewhat or extremely comfortable when facilitating the application of university research on climate change (Table 2). Fifteen attendees indicated that after the workshop they were somewhat or extremely comfortable hosting programs that deal with climate change in their respective county or region. Fifteen attendees said they were somewhat or extremely comfortable delivering presentations that deal with climate change.

Table 2. Comfort Presenting Climate Change Information After the Cattle and Climate Conversations Workshop

<table>
<thead>
<tr>
<th>(n = 28)</th>
<th>Extremely uncomfortable</th>
<th>Somewhat uncomfortable</th>
<th>Neither comfortable nor uncomfortable</th>
<th>Somewhat comfortable</th>
<th>Extremely comfortable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitating</td>
<td>-</td>
<td>-</td>
<td>12</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Hosting</td>
<td>3</td>
<td>-</td>
<td>9</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Delivering</td>
<td>5</td>
<td>-</td>
<td>7</td>
<td>11</td>
<td>4</td>
</tr>
</tbody>
</table>

Means were calculated for comfort in facilitating, hosting, and delivering climate change information and presentations for before and after the workshop, with increases in mean comfort on each variable. To compare overall changes in comfort with facilitating, hosting, and delivering information and presentations on climate change, variables were combined into “before” and “after” indexes. Like the individual variables, the combined mean level of comfort increased after the workshop. The increase in mean indicates that the workshop was effective in increasing attendees’ level of comfort when working with climate change topics (Table 3).
Table 3. Mean Change in Comfort Before and After the Cattle and Climate Conversations Workshop

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th></th>
<th>After</th>
<th></th>
<th>M Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Facilitating</td>
<td>3.00</td>
<td>1.11</td>
<td>3.71</td>
<td>0.71</td>
<td>0.71</td>
</tr>
<tr>
<td>Hosting</td>
<td>2.74</td>
<td>1.29</td>
<td>3.44</td>
<td>1.09</td>
<td>0.70</td>
</tr>
<tr>
<td>Delivering</td>
<td>2.67</td>
<td>1.39</td>
<td>3.33</td>
<td>1.30</td>
<td>0.67</td>
</tr>
<tr>
<td>Mean Index</td>
<td>2.80</td>
<td>1.17</td>
<td>3.49</td>
<td>.89</td>
<td>0.69</td>
</tr>
</tbody>
</table>

Note: Comfort variables were measured on a five-point Likert-type scale of 1 = extremely uncomfortable, 2 = somewhat comfortable, 3 = neither comfortable nor uncomfortable, 4 = somewhat comfortable, and 5 = extremely comfortable.

Paired sample t-tests were used to determine if there were statistically significant differences in the mean comfort scores before and after the workshop. There were statistically significant differences at the $p < .001$ level for all variables, including the mean indexes for combined variables (Table 4). To examine the effectiveness of the workshop on increasing comfort levels, eta squared was calculated for each set of corresponding variables. The eta squared statistic indicated a large effect size, according to the guidelines of Cohen (1988) (Table 4).

Table 4. Paired t-Test Results Before and After the Cattle and Climate Conversations Workshop

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>eta squared</th>
</tr>
</thead>
<tbody>
<tr>
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<td>-4.208</td>
<td>26</td>
<td>.000</td>
<td>.41</td>
</tr>
<tr>
<td>Hosting</td>
<td>-4.716</td>
<td>26</td>
<td>.000</td>
<td>.46</td>
</tr>
<tr>
<td>Delivering</td>
<td>-4.416</td>
<td>26</td>
<td>.000</td>
<td>.43</td>
</tr>
<tr>
<td>Mean Index</td>
<td>-5.196</td>
<td>26</td>
<td>.000</td>
<td>.51</td>
</tr>
</tbody>
</table>

Note: All t-tests were calculated with a 95% confidence interval rating.

Six workshop sessions were conducted throughout the one-day workshop. Attendees were asked to rate their level of perceived benefit for each session on a semantic differential scale with 0 = no benefit to 4 = extremely beneficial. Mean scores were calculated for the perceived benefit of each session and overall workshop benefit (Table 5). “Historic Climate Trends and Future Projections” was rated as the most beneficial session, with a mean rating of 3.52 ($SD = .80$). The session focused on explaining trending climate data and the manipulation of climate data in visual representations.
Attendees provided open-ended responses as to why they found the “Historic Climate Trends and Future Projections” session to be beneficial or not beneficial. Attendees found the data presented, discussion of scales and trending data, and the engaging manner of the presentation to be most beneficial. One attendee stated he found the session beneficial because it was a “good scientifically based program. I liked that [the presenter] pointed out the way things are delivered can change the perception of the audience.” Another attendee stated that the “entertaining speaker that kept us engaged. He presented facts, figures, and actual observations, not a bunch of modeling.” Another attendee noted, “[The session] made me reevaluate the way I look at graphs and charts, along with giving me ideas on creating them as well.”

Attendees also found “How to ‘Talk Climate’ with Cattle Producers” as beneficial, with a mean perceived benefit of 3.04 (SD = .82) (Table 5). The session focused on the practices cattle producers were implementing to adapt to and mitigate the effects of climate change. It also examined how the topic of climate change can be bridged with cattle producers. One attendee stated the session was a “good example of groups communicating and working together.” Another attendee shared that the session was “relevant on how to begin the conversation without the resistance of ‘this does not apply to me as a producer.’” Another attendee said, “[The presenter] showed how farmers worked to get scientific data that has helped them avoid unrealistic regulations. Also, using the data to make recommended changes.”

Workshop attendees also provided feedback on the climate change training and materials they felt they still needed. A theme that emerged was that attendees felt additional training was needed on how to have in-person conversations and training on specific climate change-related data and tools that cattle producers can use. One attendee stated:

### Table 5. Mean Perceived Benefit for Each Cattle and Climate Conversations Workshop Session

<table>
<thead>
<tr>
<th>Session</th>
<th>n</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic Climate Trends and Future Projections</td>
<td>27</td>
<td>3.52</td>
<td>0.80</td>
</tr>
<tr>
<td>How to “Talk Climate” with Cattle Producers</td>
<td>26</td>
<td>3.04</td>
<td>0.82</td>
</tr>
<tr>
<td>Facilitated Discussion with Extension Agents and NRCS Personnel</td>
<td>25</td>
<td>2.84</td>
<td>0.94</td>
</tr>
<tr>
<td>Vulnerability of Cattle Production to Climate Change on U.S. Rangelands</td>
<td>25</td>
<td>2.52</td>
<td>1.00</td>
</tr>
<tr>
<td>Building Blocks for Climate Action and Mitigation</td>
<td>25</td>
<td>2.52</td>
<td>1.00</td>
</tr>
<tr>
<td>Differing Roles and Responsibilities for Cooperative Extension and NRCS for Improving Resiliency to Climate Variability</td>
<td>27</td>
<td>2.19</td>
<td>1.11</td>
</tr>
</tbody>
</table>

*Note: Benefit was measured on a semantic differential scale with 0 = no benefit to 4 = extremely beneficial.*
A training about how to actually have the conversation. Although the workshop was good, the impression I got from most people was that they were not going to talk about climate change because it is too politically charged and will shut people down, so instead, we talk around the issue.

Another attendee expressed a similar desire for a program focused more specifically on communicating climate change to cattle producers: “The workshop focused more on communicating climate change in general, rather than communicating climate change with cattle producers. It may have been better to focus a little more heavily on that part.” Another attendee stated, “A plan for visiting with producers [is needed]. Unless told otherwise I will continue to utilize best management practices.” In relation to cattle-specific training, attendees expressed a desire for additional data related to cattle production. One attendee stated he needed “real data that is non-biased and research-based. I still feel that this is too politically charged to discuss in a public forum with county producers.” To accompany data, attendees expressed they wanted training on tools to utilize climate data, as one attendee noted: “Training on tools that a producer can use now to help with seasonal and yearly variability is much more applicable. Drought monitoring, tools for producers to record their weather data, emphasis on seasonal outlooks, etc.” Several attendees mentioned wanting science-based fact sheets, with maps and graphs of localized information.

**Discussion and Conclusions**

Traditional deficit communication models employed by Extension professionals to provide agricultural producers profit-based information have proven to be ineffective in the communication of contentious scientific topics such, as climate change (Leeuwis, 2004). If Extension is to shift from a deficit to a dialogic model of communication (Leeuwis, 2004), personnel must receive adequate training on the topic and on communication styles (Becerra et al., 2016). Extension agents engage their clientele in effective dialogue when they possess good communication and interpersonal skills paired with interest and knowledge of farming and the environment (James et al., 2014). The *Cattle and Climate Conversations Workshop* had a statistically significant impact on increasing attendees’ comfort levels in facilitating the application of university research, hosting programs in their respective counties or regions, or delivering presentations on climate change information to their cattle production clientele. The finding aligns with Becerra et al. (2016), who suggested agents needed additional training and resources on climate change topics to feel as though they had the proper capacity to address the issue.

Upon closer examination of the workshop content, attendees found the sessions that focused on climate data, trending data over time, and manipulations of data to be most beneficial. This aligns with previous research that found educators and stakeholders needed additional data, research, and understanding of the data and research to feel properly equipped to manage climate
change conversations (Becera et al., 2016; Dilling & Berggren, 2014; Gay et al., 2017). Understanding the science-based information behind the causes of and strategies in reaction to climate change is the first needed step to build the confidence and comfort of public educators in engaging in dialogue and tailored effective communication. In this study, making workshop content personally relevant to the attendees’ professions increased their comfort with the material and their ability to share knowledge with cattle producers (Diehl et al., 2016). Presenters who engaged the audience and made the content personally relevant to the workshop attendees received the highest benefit rating levels. Brandsford et al. (2014) also found that audiences learn best when the material is personally relevant. While content was a factor in the success of the programming, it is important to note that delivery of the material was also a very important factor for the sessions.

In the face of a lack of needed communication training or a lack of knowledge on the topic of climate change, workshop attendees indicated that they felt the topic was too politically charged to broach with their clientele or that producers felt the information did not apply to them. When attendees indicated they did not feel comfortable discussing climate change with producers, they utilized best management practices to discuss adaptation strategies. After the workshop, attendees expressed that they wanted workshops and training that focused specifically on communicating with producers and training on climate tools and data.

**Recommendations**

Based on the findings from this study, future workshops on climate change topics and communication should focus on teaching Extension agents how to implement a dialogic model of communication into their programming and conversations with agricultural producers when addressing climate change or other contentious issues. Recognizing that Extension agents have varying beliefs about the causes of climate change (Jones & Lenart, 2014), workshops should be based on the same premise of dialogic models of communication. Extension agents and NRCS personnel have shown they are receptive to learning new communication skills and have a desire for climate information that is relevant to them in their jobs. As revealed in this study, agents want and are open to conversation training. Workshops that incorporate role-play, the development of conversation starters, and the identification of clientele beliefs about climate change should be created to help increase agent comfort in contentious conversations.

The findings in this study suggest that training should be held on the use of specific climate data tools cattle producers can use in their production. Future workshops should focus more specifically on the workshop topic and prepare attendees to utilize communication strategies and climate data. It is also recommended that workshops and training utilize experts from a variety of backgrounds so collaboration on the topic of climate change can continue (Arbuckle et al., 2014).
Future research should further assess the preferred type and format of climate data that Extension agents and their clientele prefer. Additionally, it is important to examine agent perceptions of cattle producer willingness to engage in conversations about climate change and the adaption and mitigation strategies that can be implemented in cattle production and other forms of agricultural production. Assessment of the effectiveness of training should be continued as new programs are developed to teach Extension agents on dialogic communication.

References


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Child Support Compliance in Fatherhood Programs: The Role of Hope, Role Salience, and Parenting Skills

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Non-resident fathers’ compliance with child support agreements is low. An estimated 50% of fathers never pay any formal support to their co-parents (Stykes, Manning, & Brown, 2013). Responsible fatherhood programs have been developed as an alternative to incarceration to provide parenting and other skills to fathers in the hopes of increasing their payment compliance. This study adds to the sparse literature on the evaluation of responsible fatherhood programs by quantitatively examining the role of hope, parenting role salience, and parenting skills in predicting changes in child support compliance attitudes. The sample was drawn from participants in community-based responsible fatherhood programs. Results indicated that as fathers reported greater improvements in parenting skills and hope for the future, they also reported greater intentions to comply with child support agreements. Implications for fatherhood educational program design and implementation are discussed.

Keywords: fatherhood, parenting, programs, child support, parenting roles, family life education

Introduction

The average financial burden of raising a child from birth to age 18 has been estimated to be as high as $200,000 (Lino, Kuczynski, Rodriguez, & Schap, 2015). In households headed by single parents, the burden of this cost may be formally divided through the implementation of child support agreements between the child’s co-parents. However, compliance with these agreements is often low. About 50% of nonresident fathers never pay any formal child support to their respective co-parent (Stykes, Manning, & Brown, 2013). Responsible fatherhood (RF) educational programs have emerged as a strategy to increase father involvement, teach parenting skills, and address the economic circumstances faced by many fathers who are involved in child support enforcement systems. Extension staff, most commonly in Family and Consumer Sciences or even 4-H Youth Development departments (e.g., the Dads Make a Difference Program, 2019), are often charged with developing and delivering RF and other educational parenting programs aimed at men. Although these programs have existed for at least two

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decades, relatively few evaluation studies have been published. The present study responds to a long-standing, yet sparsely heeded, call for evaluations of the processes of change within RF programs (Barnow & Stapleton, 1997) by applying the theory of planned behavior (Azjen, 1985, 1991) to quantitatively examine the role of hope, parenting role salience, and parenting skills in predicting changes in child support compliance intentions among RF program participants.

**RF Programs and Child Support Enforcement**

A major referral source for participation in fatherhood programs is the child support enforcement (CSE) system within each state (Pirog & Ziol-Guest, 2006). The named goal of most CSE agencies is to ensure the economic wellbeing of families with children (Cancian, Meyer, & Han, 2011). To achieve this goal, most CSE systems utilize a process of paternity establishment, making a financial arrangement, and collecting payments (Solomon-Fears, Smith, & Berry, 2012).

However, once a financial arrangement has been made, it is relatively uncommon for the system to be 100% effective in collecting payments. The U.S. Department of Health and Human Services has reported that up to 54% of child support arrearages for individual fathers amount to $30,000 or more. Including arrearages as low as $10,000, the figure rises to 86% of noncustodial fathers (U.S. Department of Health and Human Services, 2007). Data regarding noncompliance obscure the fathers’ own financial strains and the reality that current social policy does not support their economic stability to the same degree that disadvantaged mothers are supported (Cancian et al., 2011). Furthermore, qualitative study reveals that many nonresident fathers struggle with a child support enforcement system that may not acknowledge the unique challenges they face, imposing unrealistic financial expectations and discounting the various forms of involvement that fathers may show other than making child support payments (Threlfall & Kohl, 2015; Waller, 2010).

The consequences of noncompliance with CSE agencies are often quite severe. Incarceration is not uncommon, with some locales estimating that 13% of CSE-involved fathers are in jail or have been jailed in the past for noncompliance (Ovwigho, Saunders, & Born, 2005). However, incarceration only exacerbates the debt of incarcerated fathers, because arrearages continue to accumulate while they are in jail (Turetsky, 2007). Overall, existing research suggests that the majority of fathers involved with CSE agencies face rather severe economic hardship. This hardship is well-documented as a barrier to compliance with child support orders (Huang, Mincy, & Garfinkel, 2005; Kim, Cancian, & Meyer, 2015; Sorensen & Zibman, 2001).

The CSE agencies’ emphasis on nonresident fathers’ financial responsibility is clear. Some research suggests that the emphasis on financial contribution also figures prominently into parents’ (both mothers’ and fathers’) conceptualizations of responsible fatherhood. For example, in a series of interviews with low-income parents, Waller (2010) found that the parents she interviewed viewed financial contribution as a responsibility of nonresident fathers.
Furthermore, Waller’s resident parents noted that a combination of both formal and informal contributions from the non-resident parent (e.g., gifts of cash or child-care items) was the most desirable arrangement.

A large number of RF program participants nationwide are unemployed at the time of participation, and as a result, most unemployed fathers in these programs are not making child support payments (Holcomb et al., 2015). In addition, many participants report that the limited or temporary employment they are most readily able to secure often does not pay enough to keep up with child support payments (Holcomb et al., 2015).

Overall, this suggests that employment status is a significant factor when considering a father’s intention to make child support payments. Importantly, the strong emphasis from both agencies and resident parents on financial contribution may actually come at the detriment of fathers’ willingness to be involved at all with their children, especially for those fathers who are excited to establish paternity yet are unaware that this procedure generally results in a child support payment order (Jordan-Zachery, 2009; Pate, 2002).

An Expanded View of Fathers’ Roles

Such a heavy emphasis on the role of financial provider and on the practical ability of fathers to pay child support does not consider the important role that several other factors, such as attitudes and emotions, play in fathers’ child support compliance. Threlfall and Kohl (2015) found that their sample of non-resident, African-American fathers struggled with a lack of hope for the future, perceptions of systematic bias within the child support system, and a lack of parenting efficacy. The investigators suggested that part of what explained these fathers’ lack of hope was their negative views of the child support system and how it characterizes involvement with their children. Fathers in Threlfall and Kohl’s study tended to express that their role as fathers had been reduced to simply whether or not they comply with financial child support agreements.

Furthermore, responsible fatherhood programs are sometimes seen as simply a façade for the enforcement of child support orders (Anderson, Kohler, & Letiecq, 2002). Program facilitators who were part of Threlfall and Kohl’s study noted that the psychological strain associated with involvement in child support systems, and possibly facing payment arrearages, erodes participation in parenting programs aimed at fathers. Beyond the erosion of program participation, fathers who face payment arrearages may also be struggling psychologically. Researchers have noted that men who feel as though they add no value to their families tend to be at greater risk for symptoms of depression and suicidal ideation (Emslie, Ridge, Ziebland, & Hunt, 2006).

These findings suggest that if child support compliance is a desired outcome of responsible fatherhood program participation, RF programs must consider the psychological needs of fathers when providing educational programs and services. Threlfall and Kohl (2015) suggested that
quantitative research of fatherhood programs should examine the interrelationship between child support compliance and other potential outcomes of participation in RF programs beyond job skills training and employment support. Specifically, if RF programs that include content on parenting and self-care have the potential to positively impact psychological health and fathers’ perceptions of their own parenting skills. If so, such programs may help expand fathers’ conceptions of fatherhood to something beyond paying child support.

There is some evidence (Anderson et al., 2002; Lewin-Bizan, 2015) that existing fatherhood programs may improve fathers’ skills and attitudes toward parenting. These programs achieve their outcomes through financial and other life-skills coaching, job readiness training, psychotherapy, and parenting education. However, to date, no studies have attempted to link these improvements in so-called “soft skills” to intentions of child support compliance.

Azjen’s (1985, 1991) theory of planned behavior suggests that stronger intentions to engage in a behavior increase the likelihood of actually performing the behavior. In Azjen’s theory, attitudes toward the behavior (i.e., is the outcome desirable?) and perceptions of ability to perform the behavior may also influence the intention to engage in a behavior. In RF programs, it is assumed that, as fathers become involved with their children in ways beyond paying child support, they are more likely to comply with child support agreements (Huang, 2009; Nepomnyaschy, 2007).

This study represents an evaluation examining the processes of change in target outcomes. This approach adds to the sparse literature on the evaluation of RF programs by quantitatively examining the role of enhanced hope, greater parenting role salience, and perception of greater parenting skills in predicting changes in child support compliance intentions. The theory of planned behavior suggests that changes in these attitudes and perceived abilities may influence the intentions to comply with child support.

Given prior qualitative findings (Threlfall & Kohl, 2015), we expected that as fathers improve in the psychological and behavioral constructs outlined above, their intentions to comply with child support would also improve. Fathers who fall behind on child support payments are often directed to responsible fatherhood (RF) programs as an alternative to contempt of court and resulting incarceration. Therefore, studying this population has practical implications for the professionals, including Extension educators, who deliver fatherhood programming (Jordan, 2001; Maiorano & Futris, 2005).

Methods

The sample of participants for this study consisted of 602 nonresident fathers who participated in RF programs in multiple counties of a southern state. Like many other RF programs nationwide, the program participant pool was recruited mostly through child support enforcement agencies.
The mean age of the sample was 36.8 years old, with a range from 17 to 70 years of age (SD = 9.5 years). The participants in the sample were 58% Black, 39% White, and 3% other races. Participants reported mostly completing high school or less educational attainment, with 30% never finishing high school, 51% having only a high school diploma/GED, 11% having a trade school or technical certificate, and 8% having a bachelor’s degree or higher.

Sixty-five percent of the sample reported being currently unemployed, and 75% of the sample reported a household income of less than $10,000 annually. Taken together, these demographic data place participants in a lower socioeconomic bracket.

The current relationship status of the sample was mostly single and never married (38%), followed by committed relationship and unmarried (20%), married (15%), separated (8%), divorced (17%), and widowed (2%). Those in a couple relationship were not in a couple relationship with the mother to whom they have a child support obligation. All were noncustodial fathers. On average, participants had more than two total children each, regardless of mother (M = 2.35 children; SD = 1.4 children).

The Intervention

Participants received curriculum-based, fatherhood-specific educational instruction from facilitators at several community-based cooperative extension offices and family resource centers throughout a southeastern state. Facilitators of the program were all trained, paid staff with experience in community-based education at each site (e.g., social workers, extension educators, para-educators). The program employed a fatherhood-specific curriculum component in addition to specific job skills and financial management training. The curriculum used was 24/7 Dads, which involves a 12-week group meeting format wherein various parenting, relationship, and stress management topics are taught to fathers. This curriculum is supported by several local evaluation reports, including reports created by outside evaluators (e.g., Lewin-Bizan, 2015) documenting the ability of the program to provide fathers the skills and information necessary to enhance their involvement in child-rearing.

While participating in the curriculum, participants also received job search assistance and job skills training from case managers at each family resource center. For example, RF staff conduct mock interviews, assist participants with preparing resumés, and help participants to obtain presentable clothing for potential interviews. The RF staff also have agreements with local employers to receive first word of potential employment opportunities. If RF staff do not have the ability to train participants in particular job skills (e.g., welding), they procure the funds to sponsor participant attendance in outside classes. Upon terminating program services, fathers completed a questionnaire assessing their healthy relationship skills, parenting skills, and child support compliance intentions.
Measures

All data collection procedures were approved by the Institutional Review Board (IRB) at Auburn University. Consistent with typical IRB regulations, participants were given the option of skipping any question they were uncomfortable answering. All surveys were anonymous. Participants were assured that their answers had no bearing on their ability to participate in or continue receiving services from the RF program.

All measures were assessed in a retrospective pre/post format. Participants were asked at program completion to retrospectively rate their pre-program responses, as well as provide an after-completion-of-the-program rating response to each item. The use of a retrospective pre/post format when assessing program effects has been shown to reduce response bias (Pratt, McGuigan, & Katzev, 2000). Pratt et al.’s (2000) study showed that study participants are less likely to either over- or underestimate their pre-test understanding of elements of the curriculum when asked in a retrospective format. Specifically, it is difficult for participants to be able to articulate what they know or do not know about a particular area targeted by the program before actually experiencing the program. In addition, Lam and Bengo (2003) argued that the retrospective pre/post format is less susceptible to socially desirable response bias than other methods. Thus, when attempting to measure participants’ perceptions of their learning over the course of a program, a retrospective design has been shown to produce more accurate assessments of learning outcomes and participants’ perceptions of change due to program participation than traditional pre- and post-test methods (Davis, 2003; Rockwell & Kohn, 1989).

Five factors were measured in this study to match the stated objectives of the RF programs: child support compliance intent, relationship with child, parenting role salience, parenting skills, and hope for the future.

Child support compliance intent was measured using a global item (“I am committed to making full child support payments each month”) rated on a 7-point scale from 1 = strongly disagree to 7 = strongly agree. The global item wording and response scale mirrors items on other established commitment scales, (e.g., Ajzen, Czasch, & Flood, 2009; Stanley & Markman, 1992).

Relationship with child was assessed using a three-item scale: (1) I share a warm, affectionate relationship with my child. (2) If upset, my child will seek comfort from me (3). My child values his/her relationship with me. The items were drawn from Pianta’s (1994) Child-Parent Relationship Scale (for the current sample, Cronbach’s α = .89). Responses ranged from 1 = strongly disagree to 7 = strongly agree. Early piloting of the full scale allowed for psychometric analyses to inform item reduction.

Parenting role salience was measured using two items from the Parental Role Commitment Scale (1) I expect to devote a significant amount of time and energy to raising my children. (2) I expect to be involved in the day to day matters of raising my child. The items were drawn from
Amatea, Cross, Clark, and Bobby (1986; for the current sample, Cronbach’s α = .79). Responses ranged from 1 = strongly disagree to 7 = strongly agree. Early piloting of the full scale allowed for psychometric analyses to inform item reduction.

Parenting skills were measured using three items assessing the frequency of positive parenting behaviors. (1) How often do you give reasons why rules should be obeyed? (2) How often do you give praise? (3) How often do you explain the consequences of their behavior? For the current sample, Cronbach’s α = .85. Responses ranged from 1 = almost never to 7 = very often. The items were developed and validated in prior pilot studies (e.g., Adler-Baeder, Calligas, Skuban, Keiley, Ketring, & Smith, 2013).

Hope for the future was measured using three items from the State Hope Scale (1) I can think of many ways to reach my goals. (2) Right now, I see myself as being pretty successful. (3) I am energetically pursuing my goals. Items were drawn from Snyder and colleagues (1996; for the current sample, Cronbach’s α = .90). Responses ranged from 1 = strongly disagree to 7 = strongly agree. Early piloting of the full scale allowed for psychometric analyses to inform item reduction.

**Results**

To establish post-program change in child support compliance intentions, a paired-sample t-test was conducted comparing pre-program ratings with post-program ratings on the five factors of interest. See Table 1 for a summary. Results showed that on average, fathers reported statistically significant improvement in the intent to comply with child support (pre-program mean: 4.9; post-program mean = 5.8; t(601) = -12.8, p < .001).

<table>
<thead>
<tr>
<th></th>
<th>T1 Mean (SD)</th>
<th>T2 Mean (SD)</th>
<th>t (df)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hope</td>
<td>4.8 (1.6)</td>
<td>6.1 (1.1)</td>
<td>21.8 (601) ***</td>
</tr>
<tr>
<td>Role Salience</td>
<td>4.9 (1.2)</td>
<td>5.7 (1.1)</td>
<td>16.8 (601) ***</td>
</tr>
<tr>
<td>Parenting Skills</td>
<td>5.3 (1.5)</td>
<td>6.2 (1.2)</td>
<td>19.4 (601) ***</td>
</tr>
<tr>
<td>CSCI</td>
<td>5.0 (2.0)</td>
<td>5.8 (1.8)</td>
<td>12.8 (601) ***</td>
</tr>
</tbody>
</table>

*Note: N = 602; SD = standard deviation; CSCI = Child support compliance intentions; ** p < .01, *** p < .001.*

A stepwise multiple regression model was then fit (see Table 2) to the data predicting post-program child support compliance intentions accounting for pre-program levels. Collinearity statistics were within acceptable limits for all predictors (Tolerance > .5). Work status (employed full time, part time, or not working) and pre-program father-child relationship were entered as controls (Model 1), with post-program difference scores (post minus pre) of hope, parenting role salience, and parenting skills as the predictors of interest (Model 2). Results showed that Model 1 predicted 43% of the variance. Results from Model 2 indicated that hope...
(β = .12, p < .001), role salience (β = .19, p < .001) and parenting skills (β = .12, p < .001) independently predicted post-program child support compliance intentions. As participants reported greater post-program change in hope, role salience, and parenting skills, they tended to report greater change in child support compliance intentions. Model 2 accounted for an additional 10% of the variance in post-program child support compliance intentions.

Table 2. Stepwise Regression Predicting Residual Post-Program Change in Child Support Compliance Intentions

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>β</td>
<td>B</td>
</tr>
<tr>
<td>T1 CSCI</td>
<td>.58***</td>
<td>.03</td>
<td>.66</td>
<td>.62***</td>
</tr>
<tr>
<td>T1 Father-child</td>
<td>-.04</td>
<td>.07</td>
<td>-.03</td>
<td>.13</td>
</tr>
<tr>
<td>relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1 Work Status</td>
<td>.04</td>
<td>.07</td>
<td>.02</td>
<td>.08**</td>
</tr>
<tr>
<td>Role Salience</td>
<td></td>
<td></td>
<td>.19***</td>
<td>.06</td>
</tr>
<tr>
<td>Hope</td>
<td>.15**</td>
<td>.04</td>
<td>.12</td>
<td></td>
</tr>
<tr>
<td>Parenting Skills</td>
<td>.17**</td>
<td>.05</td>
<td>.12</td>
<td></td>
</tr>
</tbody>
</table>

R²: .43 R²: .53

Note: CSCI = Child support compliance intentions; ** p < .01, *** p < .001.

Discussion

Fathers involved in the child support system may feel withdrawn from their parenting role due to the overemphasis on financial responsibility (Threlfall & Kohl, 2015). Given the economic challenges faced by many fathers involved in RF programs, expanding their understanding of fatherhood beyond financial obligation is an important task of RF staff. Guided by the theory of planned behavior (Ajzen, 1985, 1991), we found that, as fathers’ parenting skills and hopefulness for the future improved in the course of a program, they also reported greater post-program changes in child support compliance intentions. These findings have theoretical and practical implications for those working within RF programs.

The present study suggests that providing fathers with parenting skills education and positively effecting change in this area is associated with greater changes in intent to pay child support. RF program staff may capitalize on the link between changes in parenting skills and child support compliance intentions by targeting skills in which participants see a need for improvement. A simple needs assessment may accomplish this task. Fathers who perceive an increase in their parenting skills may see contact with their children as a more desirable event. The theory of planned behavior would suggest that a father who perceives contact with his children more favorably may view compliance with child support as a means of actually engaging with his children. This may also fulfill a typical desire to feel useful toward the family (Emslie et al., 2006).
Our measure of parenting role salience taps into the expectation that fathers have to be involved in their children’s lives on a day-to-day basis. Fathers who intend to spend a greater amount of time and energy with their children may find practical value in contributing to a stable economic environment for their children (Huang, 2009; Nepomnyaschy, 2007). As RF program staff help fathers to see themselves as active members of their children’s lives, compliance with financial obligations may be seen as a component of this involvement.

Results also suggest that enhancing fathers’ sense of hopefulness about the future is a predictor of positive change in child support compliance intentions. The theory of planned behavior would suggest that hopelessness may influence a father’s perception of his ability to comply with child support agreements, thus reducing his intention to comply. Feelings of hopelessness can be related to depression and, as such, RF programs can serve as an important gateway for fathers to identify and seek needed mental health services. There is a consistent finding in the literature that men are overall less likely than women to seek help related to issues of psychological health, although this association does vary somewhat among cultures (Moller-Leimkuhler, 2002; Vogel, Helmerding-Ewards, Hammer, & Hubbard, 2011). Furthermore, when men experience symptoms of disorders such as depression, these symptoms are more likely to be dismissed by either family or professionals as physical in origin (Moller-Leimkuhler, 2002). Our finding that hopefulness for the future is a contributor to overall changes in intent to comply with child support suggests that dismissing men’s feelings of hopelessness is not just costly for the man himself, but it may also be a costly misappraisal for his children.

For many fathers in RF programs, enhanced feelings of hopefulness may be related to their feelings of enhanced parenting skills and may be specifically related to the programs’ work to improve their ability to navigate the child support system (Threlfall & Kohl, 2015). In addition, most RF programs (including the program covered in this study) include job search assistance and some job training elements as part of program services. Job assistance and training could be categorized as a type of experience that adds to a person’s sense of self-efficacy or mastery. Greater feelings of self-efficacy or mastery are associated, especially among African-American men, with reduced feelings of depression (Mizell, 1999), which may include hope for the future. Therefore, continued efforts to address fathers’ sense of hope for the future through program content and referral to other job training and mental health services are warranted, as are studies of predictors of hope for the future among noncustodial fathers.

**Limitations**

This study has notable limitations. First, our measurement scale items related to fathers’ hope and role salience are not as detailed as we would like. Although statistically reliable, the scales contain only a few items that refer to relatively general constructs within each area. Thus, our suggestions refer only to broad initiatives within RF programs instead of specific skills or fathering role development that may be important to participants. Future analyses might benefit
from a more detailed assessment of parenting and role salience that was not afforded by the current instruments. For example, a measure of role salience that is specifically tailored to men and fathering may be more appropriate. The current study was part of an initial evaluation of an RF program and fathers were not compensated for participation in the study. Research support in the future may allow for more detailed assessments and compensation to research participants for their time investment.

Second, we note a limitation in the measurement of our outcome of interest. Although intentions to behave a certain way are necessary precursors to real action (Azjen, 1985, 1991), they are an indicator of more objective RF programming outcomes. Gaining access to data on actual child support payments would add validity to the suggestions developed from the current results. Future study might include both intentions and actual payments as indicators of programming outcomes rather than simply relying on intentions.

Finally, although fathers were informed that their participation in the research study was not linked to their access to RF programming services, it is possible, as with any program evaluation, that social desirability bias may have influenced some of the outcomes of our results. In addition, effective facilitators create a kind of bond with participants. Thus, fathers may also have felt compelled to respond favorably to not jeopardize the careers of their helpers. Social desirability may also be a factor in reporting intent to pay child support. However, our assessment focused on change in this variable rather than the level of intent.

**Conclusion**

Despite the noted limitations, the present study adds practical information to a small evidence base of RF program effectiveness. We emphasize the link between outcomes related to RF program content on fathers’ attitudes and skills, as well as hopefulness and their association with enhanced child support compliance intentions. This represents more of a study of the process of change compared to the more typical assessment of change in a list of possible program outcomes of RF programs. Programs seeking to increase compliance with child support agreements are well-advised to simultaneously address parenting and financial or job-specific outcomes. It seems evident that it is not just fathers’ practical ability to comply with child support obligations that influence their intent to pay. Maintaining a balanced emphasis on parenting and cognitive skills related to managing hopelessness in addition to job and financial assistance will contribute to the effectiveness of RF programs in promoting child support compliance.

**References**


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Engaging Youth as Influencers in Leadership Event Planning

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Contemporary youth development requires a new approach to involving youth in more active, engaging, and influential leadership roles. Teens and youth program professionals recognize the need young leaders have for more mentorship and accountability from adults to grow into their leadership potential. This paper specifically addresses how youth development professionals can engage student leadership teams in co-designing experiences for teens through the role of influencers. In this role, young leaders radiate their influence both laterally among their peers and vertically among adult leaders, developing stronger networks and gaining valuable experience. This paper draws observations from two state-level programs, the Missouri FFA Leadership Camp and the Missouri 4-H Youth Civic Leaders Summit, as examples of effective and productive practice. The authors provide recommendations on how adult practitioners can gain buy-in from other adult coordinators, incorporate youth as influencers in leadership event planning, and foster positive youth development in the process.

*Keywords*: influencer, positive youth development, youth-adult partnerships, soft skills, pedagogy, andragogy, middle management

**Introduction**

Founded upon Bronfenbrenner’s (1979) ecological model, positive youth development recognizes the role of adults in creating positive environments that engage, challenge, and support youth to thrive. Yet, positive youth development also acknowledges the role of youth in contributing to their own development and the development of their communities. Positive youth development offers an asset-based approach to designing programs and working with young people.

National youth leadership survey results indicate that youth are optimistic about using their leadership skills in the future, but say they need more confidence, hands-on experience, and mentorship from adults to realize their full potential (Harris Poll, 2016). Seven out of ten youth surveyed see leadership as a skill they can practice and work to improve, but only three out of ten said they are prepared to lead.
Leadership, as described by MacNeil (2006), is a combination of the ability to positively influence with the authority to do so. Youth development professionals have articulated various ways in which young people can be empowered with authority and work in partnership with adults, becoming co-creators of their environments as planners, advocates, or advisors (Illinois 4-H, n.d.). These opportunities also move young people closer to the goals (or 5 Cs) of positive youth development, which include competence, confidence, character, caring, and connection, and lead to the “sixth C” of contribution (Hamilton, Hamilton, & Pittman, 2004; Lerner, Lerner, & Phelps, 2008).

4-H and FFA are both organizations with longstanding ties to rural communities. They share complementary (but not entirely overlapping) missions of fostering leadership, life skills, and community/civic engagement, equipping youth to be lifelong learners and leaders in their communities and the world (Hoover, Scholl, Dunigan, & Mamontova, 2007). FFA is linked to the U.S. Department of Education, while 4-H is part of the Cooperative Extension Service of the Land Grant University (LGU) system. Both organizations draw from a non-formal community-based educational model, with a focus on career development and civic engagement. FFA programming involves a formal educational component, as well, delivered through classroom-based high-school agricultural education (Hoover et al., 2007).

In this paper, we draw upon our experience as 4-H and FFA professionals who have coordinated adult teams in planning and conducting statewide leadership events with high school students. We share a commitment as youth development professionals to foster youth voices in planning and to accomplish our work through youth-adult partnerships. We address how youth development professionals can engage student leadership teams in co-designing and delivering youth development experiences for teens. We draw observations from two state-level programs, the Missouri FFA Leadership Camp and the Missouri 4-H Youth Civic Leaders Summit. We highlight how student leadership teams can bolster the goals of positive youth development and conclude with implications and recommendations for practice.

**Youth Leadership and Today’s Workforce**

Leadership events are a key component of high school education, spanning both curricular and extracurricular involvement. From our observations, leadership conference planners often set goals for leadership experiences to align with goals of formal education. They seek to impart knowledge to students, have students gain competency in subject matter, and demonstrate mastery through leadership roles, contests, and competitions. Learning objectives for such events are framed in terms of knowledge or skills participants will gain to become better leaders. Content and method decisions are based on teacher-led classroom pedagogy. This traditional way of planning and conducting leadership events reflects a pedagogical approach, where the focus is on developing the individual capabilities of each student.
Learning “how to learn” and how to connect with others to learn are essential skills for today’s leaders (Marsick & Watkins, 2015). Today’s real-world workforce is an increasingly collaborative environment where knowledge lies less with the individual and more between workers and within networks (Hoffman, Casnocha, & Yeh, 2014). To be effective, leaders must be able to navigate relationships within complex systems, gain access to knowledge, and apply it to problem-solving (Metcalf & Benn, 2013). In the area of career readiness, soft skills are of growing importance to employers seeking new hires (Office of Disability Employment Policy, n.d.). Soft skills, as differentiated from hard skills involving technical knowledge, are personal qualities, like teamwork, flexibility, and commitment that make an individual a contributing member of any group (National Soft Skills Association, 2016). In our view, traditional approaches to youth leadership development have not gone far enough to prepare students with the soft skills they need for today’s workforce.

We propose an approach that practitioners can take in youth leadership event planning that better meets the developmental needs of young people preparing for today’s workforce. This approach encompasses both the goals of education and, more broadly, positive youth development. Within this context, young people work as influencers on student leadership teams in roles designed to support their personal development, as well as the development of other youth.

For purposes of this study, we are defining influencers as youth in leadership team roles who influence both adult event planners and peer event participants. Influencers vocalize youth needs and desires to adult event planners and team leaders and influence youth participants by exemplifying actions and attitudes. As influencers, leadership team members build connections with adults and with each other and strengthen networks between youth event participants. They may occupy planning, advocating, advising, teaching, mentoring, and other leadership roles all at the same time. In this sense, influencers radiate impact up and down the channel of event planning, leadership, and participation. They point themselves and the other young people they influence toward attaining Lerner et al.’s (2008) sixth C of contribution.

### Planning Events with Youth Influencer Roles

Student leadership teams at leadership events are typically comprised of high school age students with superior leadership ability as individuals, but relatively little experience as large event coordinators or group facilitators. As such, they start at the ground level when stepping into influencer roles, which gives adult planners and coaches the opportunity to initiate new thinking strategies and to introduce more mature and professional concepts, such as performance feedback, middle management, and networking. This situation is desirable for three reasons that relate to positive youth development.

First, student leadership teams engage youth in real-world settings that support soft skill development (Gates et al., 2016). Youth can practice and learn how soft skills like attitude, responsibility, communication, teamwork, and conflict resolution impact real-life events and
people around them (ODEP, n.d.). Team experiences combine elements of the professional world and youth leadership development. Students stepping into influencer roles reflect a middle management approach to conference and event planning, as students function as quasi-middle managers or intermediaries between youth and adults. They are delegated tasks with specific parameters and outcomes, asked to represent lower and lateral level interests, and report to upper managers on needs and concerns. They receive coaching and feedback on performance, but also have the discretion to choose unique pathways to accomplishing goals.

Second, student leadership teams require adult planners to use a hybrid of pedagogy and andragogy methods to engage youth (Choy, 2005). This hybrid methodology combines strategies of both youth and adult education in training, coaching, and support (Anderson & Sandman, 2009; Delahaye, Limerick, & Hearn, 1994). Recognizing that teens are cognitively, socially, emotionally, and physically in the “middle ground” between childhood and adulthood requires practitioners to remain flexible while using a mixed-methods approach. Teens respond positively when adults meet them where they are and engage them as “adult leaders” and learners (Tomek & Williams, 1999).

Finally, using student leadership teams as influencers supports the development of young people as leaders (Camino, 2005). Whether through the power of position, knowledge, reverence, or coercion, leadership is a direct representation of influence (Maxwell, 2007). When affirming and recognizing youths’ influences on event planning on multiple levels, we enable youth to progress along the path of influence and, in turn, grow their leadership ability.

To illustrate these points, we present case studies of two state-level programs utilizing young people as influencers: the Missouri FFA Leadership Camp, with the state FFA officer team, and the Missouri 4-H Youth Civic Leaders Summit, with the Summit youth host team.

Previous research has shown how case studies can be a useful approach for studying complex programs involving youth-adult partnerships, especially when identifying promising practices is the goal (Camino, 2005). Based on our personal observations, follow-up interviews with youth and adult event planners, insights and experience of other practitioners, and corroboration between the two state-level programs, we chose a case study approach. Advantages of this approach include an in-depth look at the details of program settings and youth/adult interactions. Limitations of this approach may include generalizing the findings to other settings. Research that involves more direct data collection from youth and adult planners and participants would enhance our understanding of how youth influence the process and the outcomes.

**Case Study 1: Missouri FFA Leadership Camp**

The Missouri FFA Leadership Camp is a 5-day summer camp for high school agricultural education students. The camp is offered six times for six consecutive weeks each summer, with a rotation of five state officers working with a Camp Leadership Director and other support staff
to host the camp. Approximately 150-200 students attend each week, along with chapter FFA advisors, chaperones, and guest speakers.

The state officer team consists of 17 FFA members entering their senior year of high school or first two years of college. A panel of former state officers and current agriculture educators/FFA advisors select the state officer team annually to serve a one-year term. The Missouri FFA Leadership Camp provides the state officers with one of their first large group facilitation, motivational public speaking, and sustained member interaction experiences, just a few weeks after their election.

While at the FFA Leadership Camp, the state officers take on the role of influencers under the purview of the camp leadership director, who is responsible for assigning duties and giving feedback on their performance. The state officers are required to deliver short motivational speeches to campers and engage in multiple coaching sessions with the director before delivering the speech. In this sense, the themes of soft skill career development and blended teaching methods are highly evident.

The state officers also facilitate portions of a leadership workshop for large groups of campers and debrief with the team and camp leadership director shortly after. As part of this process, the camp leadership director incorporates elements of professional performance review, such as asking officers to self-evaluate, identify areas for improvement, or solicit feedback from peers. The review is not entirely student self-driven. The camp leadership director provides constructive criticism and facilitated reflection. This approach represents an andragogic approach of self-motivated learning, supported by a lesser, but no less valuable, pedagogic approach of walking the student through the process.

Despite a long-term trend separating management from leadership across public, private, and civic sectors (Drucker, 2001), the FFA Leadership Camp sustains the connection and even the integration of the two. The state officers are both leaders who influence campers and the camp leadership director, as well as managers who coordinate small groups and plan event logistics. The state officers take on the middle management role by becoming responsible for the performance of their student groups, including a student reflection team, weekly elected camp officers, and informal small groups during workshops. They report to the camp leadership director, addressing issues and presenting positive outcomes, to fuel the conversation of growth and maturity among these state officer leaders. These experiences parallel the responsibilities of middle managers in real-life organizational settings and offer opportunities to reflect on soft skills such as group dynamics and critical thinking.

Planned interactions between the state officers and Leadership Camp participants over multiple days build and extend statewide networks. The state officers commonly form connections with specific chapters or members during the Leadership Camp and continue building those relationships throughout the year at other events. Relationships with the camp leadership
director and other camp guests (i.e., speakers and presenters) expand the state officers’ professional networks, connecting them with industry leaders, teachers, and mentors who become viable options for future role models.

Case Study 2: Missouri 4-H Youth Civic Leaders Summit

The Missouri 4-H Youth Civic Leaders Summit is a statewide leadership conference organized by Missouri 4-H. Teams of youth, ages 14-18, attend with local 4-H staff members or volunteers as team leaders. Youth and adults participate together in teambuilding activities, a high ropes course activity, workshops, and action planning, emerging from the weekend with new partnerships and plans to engage their communities and world.

Summit objectives include increased knowledge of leadership styles, teamwork, awareness, and acceptance of differences, belief that youth and adults can work together, skills for civic engagement, and motivation to engage others.

Each year, the event planning team, made up of 4-H youth development and community development specialists, selects a youth host team from among county-based 4-H groups who apply. The youth host team must show a track record of teamwork and service and demonstrate readiness to help plan and lead the statewide conference.

The youth host team, with support from local 4-H staff or adult volunteers, joins the adult planning team in overall event planning to ensure decisions remain grounded in youth perspective. With adult guidance, youth host team members weigh in on event decisions and prepare for leadership roles they will step into during the conference.

The planning stage offers many opportunities for youth host team members to develop soft skills, including teambuilding, professional communication, consensus building, decision-making, and conflict resolution. The youth host team members collaborate fully with the adult planning team, mainly through the youth engagement associate (graduate assistant) and the lead organizer (state 4-H youth development specialist). The youth engagement associate is a graduate student who acts as a liaison between the youth host team and the adult planning team, and helps organize and facilitate youth host team meetings. Youth host team members generate ideas, weigh diverse opinions, and construct plans to implement group decisions. Exposure to virtual meeting platforms, online facilitation, and web etiquette offer youth host team members opportunities to learn technology skills for career readiness.

Youth host team roles and responsibilities reflect a blended approach to engagement involving andragogy and pedagogy. Youth host team members influence adult planning team decisions, including theme, keynote speakers, and workshop tracks. At the same time, they assume ownership and group decision-making for many conference details, including t-shirt design, food
menu, site decorations, meet and greet activities, group skits, plenary session speaking parts, breakout presentations, and recognition of teams at the closing assembly.

Youth host team members receive coaching and support for these roles from their 4-H staff person and adult volunteers, as well as the youth engagement associate and lead organizer. The youth engagement associate offers guidance on self-management, group facilitation, skit design and delivery, and reflection. Using a youth-learner approach, the youth engagement associate leads discussions on how youth host team members can prepare for their leadership roles and be ready to execute planned activities, and what the consequences of not being prepared would look like. Tip sheets and orientation materials balance between being fun and lighthearted, and informative and thought-provoking. Applying an adult-learner approach, the youth engagement associate uses context-setting questions with youth host team members to reflect on their experiences with event planning and leadership activities and to generalize these experiences to other roles and situations.

During the conference, youth host team members model how to be managers and leaders at the same time. They move between facilitating meet-and-greet activities, to socializing and interacting with youth participants, to working as a group to lead skits and workshops, and back again. Youth host team members carry the unique challenge of navigating professional performance expectations of adults, and remaining relatable and connected to their youth peers throughout the event. This dynamic role between adolescence and adulthood, between managers who get things done and leaders who inspire others to follow, causes youth to flex their influencer muscles.

By setting the prevailing tone for the event through careful planning, and then executing on-site leadership roles, youth host team members become as much in charge of the conference as the adult planning team. By co-creating an atmosphere of energy, interaction, and engagement, youth host team members influence the learning environment for 150 youth and adult participants at the Summit. In that regard, the role of youth host team members is indispensable to achieving the youth development objectives of the event.

**Recommendations for Event Planners**

How can 4-H and FFA professionals apply this approach to their work? We recommend five ways:

1) Utilize youth leadership teams as influencers in event planning, beyond existing roles they may already have in organizational leadership, facilitation or public speaking. Incorporate youth voices (i.e., state officers, youth hosts) in planning discussions, including long-distance communication and virtual planning, as these experiences help youth gain soft skills and collaboration skills needed for the workforce. To make engaging youth leadership teams more manageable, break event planning down
into smaller parts. Focus on those parts of the process that are most conducive to having youth influence. Support youth with influencing the process through working in committees and work groups. For example, five FFA officers were assigned to each week of camp (rather than the entire slate of officers), creating a smaller working group to oversee and be accountable for that week’s events and camper experiences. Similarly, the 4-H youth host team used subgroups to accomplish various tasks such as t-shirt design, skit writing, and team project presentations. In both cases, youth leadership teams realized they had made significant contributions, and adult event planners saw better results than if youth had not influenced the outcomes.

2) Help other adult leaders see and support youth as influencers. For adults involved in event planning, youth in middle management roles may be a new practice. While eager to show support, adults may need practical steps they can take, such as redirecting group discussions to youth, encouraging peer networking at events, or highlighting ways youth influenced a decision or outcome. Set clear group expectations for equal participation from youth and adults up front. Make frequent “check-ins” with youth about their perceived level of influence on the planning process. Recognize youth in person and in public for the influence they have on decisions and outcomes. If an FFA officer’s idea resulted in the most highly ranked camp activity, make sure everyone (including the officer) knows it. If a 4-H youth host team member’s suggestion leads to the securing of a speaker, announce it from the podium, or invite the young person to introduce the speaker.

3) Identify influencer roles youth can fill on-site at events to both grow individual leadership competence (human capital) and foster team development and networking (social capital). Along with subject matter/content, create environments that maximize youth networking, collaborating, peer role modeling, and adult support. Identify roles for youth that stretch their individual leadership capabilities (such as an FFA officer organizing a team to plan and present a large group workshop or skit at camp). Also, challenge leadership teams to collaborate on new levels (such as 4-H youth host team members working together to facilitate welcoming activities and large group games with their peers).

4) Engage influencers using a blend of andragogy and pedagogy. Recognize that youth contributors are at a developmental crossroads between adolescence and adulthood. For young people not yet fully adults, but exiting childhood, a blended approach ensures their involvement is developmentally appropriate. Design orientation activities for youth that draw upon their previous leadership experiences, as well as impart new leadership knowledge and skills. To help youth prepare for leadership roles, “push” new knowledge toward them as well as “pull” prior experiences out of
them, coach youth through planning and leadership roles with realistic expectations. Balance schedules, performance expectations, and accountability for results with needs young people have for unstructured time, social interaction, friendship, and fun. Ask a variety of reflection questions that cause youth to think back on their own conference experiences, as well as put themselves in the shoes of others to understand how others experienced the process or event.

5) Recognize the role of youths as influencers as a realistic middle ground on youth participation. Time and other organizational constraints may create barriers for involving youth in full decision-making. On the spectrum of youth participation, influence is an attainable goal, which benefits all (MacNeil, 2000). Even though youth may lack the time for the entire speaker selection or hotel contracting process, influencers can still have a major sway on those decisions. FFA and 4-H professionals play a key role in elevating youth to the point of influencers in event planning. Acknowledge that young people will have as diverse and varying degrees of influence on the process as they are as diverse as individuals. Look for the “tipping point” at which individuals or groups find their voices. Help young people connect their involvement in event planning today to their pursuit of longer-term goals for college, family, and career later.

Conclusions

Today’s youths convey optimism about using their leadership skills but recognize their need for more confidence, experience, and adult mentors who can draw out their leadership potential. Educators, youth development professionals, and youth advocates can design youth leadership events with these goals in mind.

As collaboration and soft skill development become more important for college and career readiness, incorporating youth influencer roles into event planning provides opportunities for youth to stretch their leadership skills and interact with peers and adults on multiple levels. By doing so, event organizers can apply principles of youth-adult partnerships to the entire process of event design, implementation, and evaluation. With student leadership teams engaged as influencers, planners can reap the benefits of their positive influence on the environments they create, while offering young leaders opportunities to develop and sharpen skills sought by employers, communities, and the world.

References

Engaging Youth as Influencers


Engaging Youth as Influencers


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Intentional STEM Infusion (ISI) Approach for 4-H Non-STEM Project Volunteers: Finding STEM in Plain Sight

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STEM literacy is identified as a necessary skill for participation in the future workforce. 4-H has responded to this need to develop STEM-ready youth by expanding access to project areas like Robotics. It has been acknowledged that recruiting and training STEM competent staff and volunteers is a limitation in expanding these types of programs. At the same time, 4-H youth are enrolled in many traditional non-STEM projects that are imbued with STEM concepts. 4-H volunteers with increased awareness of their role in fostering STEM education and STEM literacy can be a valuable resource in preparing 4-H youth with STEM-ready professional skills. 4-H professionals can train front-line volunteers to use an intentional STEM infusion approach within the experiential learning process. It is posited that volunteers will be better able to facilitate STEM learning in real-world contexts for a wide-range of 4-H youth by using this approach. The use of the ISI approach provides an opportunity for 4-H to develop more STEM-ready youth than by only serving those youths who are attracted to STEM-focused projects alone.

Keywords: STEM literacy; integrative STEM; 4-H volunteers; volunteer development; 4-H project

International STEM Infusion (ISI) Approach

STEM literacy is recognized as a necessary skill for participation in the future workforce. 4-H has followed the importance of developing STEM literate youth by expanding access to traditionally STEM-based project areas like Robotics. Within these efforts, it has been acknowledged that recruiting and training STEM competent staff and volunteers is a limiting factor in expanding these types of project areas. At the same time, 4-H youth are enrolled in many projects that have not traditionally been considered STEM. 4-H volunteers with increased awareness of their role in fostering STEM education and STEM literacy can be a valuable resource in preparing 4-H youth with STEM-ready professional skills. 4-H professionals can train front-line volunteers to use an intentional STEM infusion approach within the experiential learning process. It is posited that volunteers will be better able to facilitate STEM learning in real-world contexts for a wide-range of 4-H youth by using this approach. The use of the ISI approach provides an opportunity for 4-H to develop more STEM-ready youth than by only serving those youths who are attracted to STEM-focused projects alone.

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resource in preparing 4-H youth who possess increased STEM literacy. 4-H professionals can train front-line volunteers to use an intentional STEM infusion approach within the 4-H experiential learning process. It is hypothesized that volunteers who utilize this approach will be better able to facilitate STEM learning in real-world contexts for a wide-range of 4-H youth. Utilization of the ISI approach provides an opportunity for 4-H to develop more STEM-ready youths than recruiting youth into STEM-specific approaches alone.

Preparation of youth in STEM (Science, Technology, Engineering, and Math) is not just about preparing youth for careers as computer programmers or rocket scientists; it is about preparation of youth that are able to think in an organized, logical, and systematic way (Kennedy & Odell, 2014; Shinn et al., 2003; Wells, 2015). The call for more STEM education has caused K-12 and postsecondary education to focus on ways to improve these areas of instruction (Basham & Marino, 2013; Wells, 2015). 4-H youth development programs have also chosen to focus on this program area, with an emphasis on expanding projects like Robotics (Nugent, Barker, Grandgenett, & Welch, 2016; Riley & Butler, 2012).

4-H youth development has long relied on the program context of learning by doing or experiential learning. This strategy has many similarities to the steps needed to develop STEM literacy (Arnold, Bourdeau, & Nott, 2013; Moye, Dugger, & Starkweather, 2014). The experiential learning model has been imbued into 4-H club work with the ‘Do. Reflect. Apply.’ strategy since Kolb (1984) translated Dewey’s approach to learning and proposed that one’s ideas and thoughts are not fixed. This reliance on the experiential learning model situates 4-H programming in a unique context to teach STEM in traditional project areas that at first glance may not be obviously STEM-related.

Front-line 4-H volunteers, project leaders, and club leaders need tools to help them plan activities that highlight STEM competency development in all project areas, not just Robotics or similar STEM-specific projects. There is limited literature on the levels of science literacy among current 4-H volunteers. However, Pottebaum (2013) did acknowledge that there is a need to improve the recruitment and training of STEM volunteers. Continuing to recruit STEM volunteers to expand programs like Robotics will be essential for continued 4-H program success. But to help 4-H members learn science by doing, it will be incumbent upon 4-H programs to provide easy-to-use resources to foster STEM literacy for 4-H volunteers in other 4-H projects to guide 4-H members’ learning.

This paper proposes an intentional STEM infusion approach that 4-H volunteers can use to foster STEM literacy in non-STEM projects. The discussion will provide practical assessment tools for 4-H volunteers to identify STEM in traditionally non-STEM 4-H projects and to help 4-H youth build STEM literacy in new contexts. This new tool may enhance current programming as a mechanism to provide STEM learning to youth that may not have an innate interest in traditional STEM projects like Robotics or Rocketry.
Experience is a Natural Way to Learn

The experiential learning framework explains that a learner is working through the experience, finding needed information, considering other viewpoints, resolving conflicts, and reflecting on the process (Joplin, 1981). The reliance that leaders in 4-H programming place on the experiential learning model uniquely situates them to be able to teach STEM in traditional project areas that at first glance may not be obviously STEM-related. 4-H programs are positioned to provide real-world learning experiences through project work and by connecting learners to research-based information from associated Land-Grant institutions. Bringing members into an authentic situation (Mayer, 1999), such as a 4-H project, can place them in the middle of real-life and complex problem that leads to experiential learning (Lindsey & Berger, 2009). As 4-H youth search for the information and skills that are needed to solve problems, they should be engaged physically, mentally, and emotionally (Joplin, 1981). Learning requires the brain to be active (Joplin, 1981) and adaptive (Kolb, 1984). Physical, hands-on activity alone does not guarantee learning (Mayer, 1999). Through critical analysis, reflection, and experimentation, a youth may develop his or her own understanding that makes sense (King & Kitchener, 1994) within the situation of the 4-H project. As 4-H members adapt their prior knowledge to accommodate their new understanding, they develop their creativity, problem-solving, and decision-making, and can apply the scientific method (King & Kitchener, 1994; Mayer, 1999). With practice, these skills will become habits of the mind (Kolb, 2014).

4-H educators should capitalize on the experiential learning model to promote STEM education in non-formal teaching and learning (Arnold et al., 2013; Nugent et al., 2016). The advantage of using experiential learning over experience alone is that youth participate in designed experiences that make a strong connection between the real world and academic knowledge (Beard & Wilson, 2002). 4-H youth in traditionally non-STEM projects can experience the extended benefits of STEM education when STEM characteristics are identified in those activities. STEM education has five characteristics: (a) there has to be a context that holds STEM elements, (b) the activity needs to be practical or authentic, (c) there are abundant opportunities for critical thinking and problem solving, (d) the activity is learner-centered, and (e) technology is used regularly in the learning context (Robinson, Westfall-Rudd, Drape, & Scherer, 2018).

Context gives learning meaning and puts STEM skills and knowledge to use in everyday situations (Driscoll, 2005). Learning to apply STEM skills and knowledge in real-life situations results in STEM literacy (Bybee, 2013). Working in real-life situations brings authenticity to learning experiences (Zollman, 2012). Authenticity is more than doing hands-on activities. Activities and problems that are authentic are open-ended, rely on the context of the situation, and will likely have multiple paths to a solution (Foutz et al., 2011; Laboy-Rush, 2011). Authenticity helps youth engage in the activity and find relevance to real life (Shinn et al., 2003).
Context gives learning meaning and puts STEM skills and knowledge to use in everyday situations (Driscoll, 2005). Learning through application and experience results in a stronger understanding of how the skills and knowledge of STEM can be applied to unique situations in the future (Laboy-Rush, 2011; Wiggins & McTighe, 2006). Youth need opportunities to practice critical questioning of given information. The opportunity for questioning, interpreting facts, and clear thinking directly related to a real or authentic situation supports independent thinking and the development of personal confidence (Rudd, 2007). 4-H educators and volunteers should use real situations with observable consequences to teach critical thinking and problem-solving. As a result, learners are provided immediate feedback that aids in the improvement of their skills and their content knowledge (Koedinger & Nathan, 2004; Moore & Carlson, 2012). As critical thinking and problem solving become habits of the mind through practice, the learner has the lifelong ability to always be refining and polishing the skills developed from past experiences (Cromwell, 1992).

The learner should be at the forefront of any experiential teaching situation. Context allows learners to apply important prior knowledge to a unique situation intuitively (Koedinger & Nathan, 2004; Moore & Carlson, 2012). Critical thinking and reflection on what is known, and what is still needed to be learned, promotes a learner’s metacognition (Turner, 2011; Zollman, 2012). When learners are put in the center of the learning experience, they have opportunities to apply their thinking skills and to solve real problems within the authentic context.

Technology is either the tool for youth to apply their knowledge or the product of youth applying their knowledge. Technology includes not only computational technology but also tools that assist in solving a problem (Sanders, 2009; Zollman, 2012). The bridge between finding technology that provides efficiency in problem-solving and designing that technology is where STEM learning is strongest. When learning by doing, using technology is often a natural conduit for youth to apply their critical thinking skills. This critical thinking process often occurs intuitively as youth find an easier way to address a problem.

As learners explore STEM education, the goal is to achieve STEM literacy so that they have skills to approach unique, complex, and real problems with confidence. Moreover, the goal of STEM education is to build STEM literacy. STEM literacy is the ability for learners to have an awareness of STEM around them in their everyday lives and the ability to apply that knowledge to solve everyday situations (Bybee, 2013). Making logical inferences, assessing whether a solution is reasonable, and knowing how to get more information when it is needed are also characteristics of STEM literacy (Kennedy & Odell, 2014; Shinn et al., 2003).

The authors speculate that the more a volunteer identifies STEM for learners, the more STEM literacy 4-H members will develop. While 4-H volunteers are experienced in planning and facilitating experiential learning by using the familiar ‘Do. Reflect. Apply’ strategy, many are not familiar with the principles of STEM education. If 4-H volunteers are provided training and
tools for identifying STEM concepts, they can design 4-H project activities within nontraditional STEM 4-H projects for members to develop STEM literacy. This is important because 4-H youth and volunteers are active in a wide range of projects. Instead of 4-H having to invest in recruit youth into STEM projects, STEM education can be expanded because it is occurring within the projects in which youth are already enrolled. The use of the ISI approach alleviates some of the pressure to recruit experienced STEM-trained volunteers and reduces the need for recruiting 4-H youth members to participate in STEM-identified projects. Volunteers and members can be assisting in building STEM skills into their current projects.

**An Intentional STEM Infusion Approach**

The intentional STEM infusion (ISI) approach will help 4-H educators and volunteers emphasize and enhance STEM in nontraditional STEM 4-H project areas. This approach is influenced by the five characteristics of STEM education (Robinson, et al., 2018) and is intended to complement the experiential learning process that 4-H has historically implemented. The seven key components of the ISI approach are delineated with an explanation of each key component, then followed with a discussion of how a front-line educator, which we have envisioned as a 4-H volunteer, would implement each component, and how a 4-H member would experience each component.

**STEM Problems and Activities are Identifiable in the Project Work**

**Explanation.** 4-H members often participate in projects because they have a genuine interest in the project or topic. The real-world, direct application of skills and knowledge that are characteristic of 4-H provide a natural outlet to identify problems that need solutions. This provides a source of activities that require members to actively engage, mentally and/or physically, with the context of the project. As problems are addressed and activities have members “doing,” members are required to problem solve or think critically as they work to create, design, or apply their skills and knowledge.

**Volunteer actions.** The 4-H volunteer should highlight when youth are doing science, technology, engineering, and math while working to solve problems and applying their knowledge during project activities. By highlighting this use of STEM content, the volunteer makes it obvious to members that STEM is present in the identified problem or well-designed activity. Making the connection between how STEM content is applied in the context of a real-world problem puts the volunteer in the position of facilitating to develop members’ STEM literacy.

**Member experience.** In application, a volunteer who is leading a Clothes You Make Project might work with a member that picked a pattern that was not the right size. The member has an authentic problem to address and one that will need STEM skills to solve. Engaging with STEM concepts, the member will apply his or her knowledge to design and resize the pattern utilizing...
math and engineering skills. With the assistance of volunteers, the member will be able to recognize, engage with, and then acknowledge their developing STEM literacy.

Science, Technology, Engineering or Math Help Reach the Activity and Project Goals

**Explanation.** Identifying STEM concepts that work alongside activities that will meet the goals of the project brings authenticity to the work members are doing. The authenticity makes the connection between the STEM concepts and the work related to the project obvious and relevant to youth. It is important to stay focused on the project’s goals when identifying STEM concepts. If the science, technology, engineering, or math is not naturally present, then it should not be forced. However, STEM can naturally and organically be included in various project types.

**Volunteer actions.** Initially, STEM components may not be obvious to 4-H volunteers. These follow-up questions will help volunteers identify the application of STEM in their projects:

- Can youth make changes to make the work easier?
- Can youth use science concepts in the project?
- Can youth use tools or technology?
- Can youth use math in the project?
- Can youth design something?

For example, when facilitating a bread project, the project leader could ask members to disassemble the kitchen stove to learn about how the stove works. However, this activity, while STEM-related, does not contribute to the project goal and therefore is not a recommended strategy. Instead, volunteers could plan to lead youth in using varied temperatures of water to investigate the differences in how bread rises so 4-H members can better understand what affects the reaction of the yeast in the bread making process.

**Member experience.** In application, a 4-H volunteer leading a Bread Making project might ask members to research where chemistry exists in the bread-making process, or how technology influences the bread making process, or how engineering can improve the bread making process. As a result of their research online or at the library, youth will identify that reactions between the yeast and sugar cause the dough to rise. Asking members to double the recipe requires accurate math. Then asking the question, “Can youth make changes to make the work easier?” could facilitate the 4-H members’ consideration of alternative cooking methods.

**Materials, Tools, and Activities are Selected from Real-Life Application**

**Explanation.** Using materials, tools, and other resources that are directly related to the project and that members would use in their own lives creates authenticity in the activity. When members gain experience with real-life resources in activities that are directly related to the project goals, the authenticity of the experience helps make connections to what is learned and
the member’s own life. These connections help build confidence in using the tools, materials, and knowledge in new situations. The use of tools and manipulation of materials is a hands-on application of engineering and technology.

**Volunteer activities.** Volunteers should gather the tools of the trade, provide members with real, unaltered materials that relate to the project, and plan activities that use those resources. Returning to the bread project, the volunteer should provide members with the ingredients in their original packaging that can be purchased from a local grocery store. Volunteers should plan activities that require members to use the ingredients, read the labels, and possibly try alternative mixing methods to determine best results.

**Member experience.** In application, members should be experiencing the authentic tools and materials in their project work. Instead of simplifying activities and removing youth interactions with the tools, make time to train the youth to use the equipment necessary. The tools used and the project activities will need to be matched to the age of the youth engaged in the activity. In the effort of ensuring STEM education, it is important to keep youth interacting with the tools. But to ensure youth safety, STEM-infused lessons will need to be adapted to the age of the youth, including potentially greater supervision, training, or selecting projects that utilize appropriate tools. For example, in a woodworking project, youth under a certain age and experience should not be using many power tools on their own. However, youth are not able to build their experience with science, technology, engineering, and math without being around, involved with, and helping complete the work that is being done. They can become familiar with technology by observing appropriately modeled use of the equipment by older and more experienced youth and adults.

**Multiple Methods or Variations for Ability Levels are Offered in the Activity**

**Explanation.** This component is not innately about STEM; however, it is important to acknowledge that members of different ages and experiences are going to have different levels of capacity, skills, and knowledge about the project topic and the STEM concepts that are identified in the project activities. Being prepared for members’ varying ability levels with alternative methods and variations in the engagement of the resources and materials will keep members engaged in a way that is most appropriate, meaningful, and relevant.

**Volunteer actions.** A volunteer should identify the different capacity levels before project work begins. Finding support for members that need extra help to work through the STEM components may be as easy as planning for more one-on-one assistance or intentionally assigning groups. To provide a greater challenge for academically strong members, a volunteer may provide the members with a problem related to the project and let them begin working with the resources provided to find a solution that makes sense.
Member experience. Even a Clover Kid (or Clover Bud), youth ages 5-7(8) years old, can engage with STEM if the content is supported appropriately. A teenage youth and a Clover Kid could be participating in the same project but should not be doing the same activity. In an arts and crafts project, Clover Kids might be asked to assess which of four drawing utensils are most appropriate for a specific drawing activity. Teen members may be asked to pick four from the available supply of drawing utensils. Both members would be asked to explain why they have chosen and ranked the utensils. The expected level of analysis, prior knowledge, and experience would be significantly different for each youth. Following this engagement activity, each youth would then be asked to complete a project following differentiated expectations that have been altered to their level of knowledge or experience. In this example, youth are engaging with the scientific process; they are forming a hypothesis, testing it, and analyzing the results. Older and younger youth are doing similar project work, but the activities become significantly different because of the tailoring of expectations and previous knowledge.

Identify Aspects of the Activity that Would Expose 4-H Members’ Gaps in Knowledge

Explanation. Through open-ended and exploratory questioning, volunteers will be able to determine what members may be familiar with and what may challenge them. This opens the door to using members’ prior knowledge to get project activities off the ground in interesting ways. Activating prior knowledge helps members make stronger connections with the new information they learn in the activities, thus making the transfer of new and old knowledge more likely in new situations (Evans, 2002; Linn, Clark, & Slotta, 2003; Ricketts & Rudd, 2002). Being aware of members’ gaps in knowledge will prepare volunteers to plan activities that will provide members with opportunities to think critically and ask questions to learn more.

Volunteer actions. Identifying gaps in members’ knowledge gives volunteers the opportunity to think critically and to seek out the deeper components of the projects they facilitate. Deeper components are the STEM aspects that are under the surface of the activity— they are the underpinning concepts that both the volunteer and the member may not fully understand. However, if the volunteer and member explore the projects STEM-based concepts together, then there is an opportunity for learning to occur.

A volunteer should ask members what they know about the project and with what they are not familiar. As a volunteer reveals this information, they should ask follow-up questions about members' knowledge; these gaps can provide a roadmap for designing activities that will address these deeper components that will challenge members, and in some cases, even the volunteers. The volunteer is not expected to be the STEM expert; thus, volunteers and members learning together can be an enriching experience for all. For example, turning the tables to have members research the chemistry of yeast and sugar in the bread-making process provides a stronger STEM-literacy building opportunity for members even if the volunteer is not familiar with the process.
**Member experience.** In application, a volunteer facilitating the archery component of a shooting sports project may ask members what will happen to the path of the arrow when the member changes the angle of the arrow’s trajectory by dropping or raising the arrow tip or how the resistance of the bowstring changes the velocity of the arrow. As members provide answers to this question, the volunteer will have fodder for follow-up activities that will help the volunteer design activities to investigate the path of an arrow. The volunteer's questions pique members' interest and draw attention to what they already know about shooting sports and how the member is applying their prior knowledge to the situation.

**The Project-Leader Can Recognize Opportunities During Project Work to Foster Critical Thinking**

**Explanation.** Critical thinking and problem solving become habits of mind through practice and application. The 4-H project provides an interesting context for members to consider many STEM aspects related to the project. Volunteers can design opportunities that challenge members to think more about what they already know about the project topic. In these opportunities, members need to think about how to apply their prior knowledge and experience, consider alternatives, or investigate new ideas or methods. Working in the context of the project provides a real situation for members to apply their thinking and see the consequences of their decisions. The immediate feedback may inspire members to ask their own questions and seek out more information they find interesting, prompting youth to take ownership of their growing knowledge.

**Volunteer actions.** Volunteers should use critical questions as a way to help youth find the gaps in their knowledge. Volunteers should also create space for youth to ask their own critical questions: Why did this work this way? How can this be better? When I do this, what else could happen? Using these questions to design activities that are related to the project, volunteers begin to create a dynamic experience to build members’ critical thinking skills as they work within the context of a project that members find intrinsically interesting.

**Member experience.** During this critical thinking process, youth monitor their own learning and self-evaluate their project work as well as their understanding of STEM concepts. As a result, this leads to an increase in STEM literacy.

Revisiting the previous archery project, the volunteer has designed an activity that asks members to investigate how an arrow travels from different distances and how the set-up trajectory changes that path. Members approach this activity as an investigation by collecting data, making conjectures, and drawing conclusions, thus exercising the scientific method as they continue to learn and hone archery skills. Through the process, members are required to consider what happens as they shoot, why changes in their aim cause different results, and how they can justify their thinking about those questions. The members are asking good questions and thinking critically as they work through the volunteer-designed activity.
Prepare Opportunities to Reflect on the Connections Between STEM Concepts Applied During Project Work and Real Life

Explanation. 4-H project work is an integrated learning environment where youth can explore STEM topics that apply to the real world. Project work is chosen by youth and completed by youth, providing an authentically motivated context for applying STEM. This youth motivation allows an opportunity for youth to apply formally-learned academic STEM knowledge to these activities. However, this application may not occur without first being facilitated by the volunteer. At the same time, new concepts learned from 4-H project work should be connected to academic knowledge and non-4-H project experiences. When youth can take STEM concepts and apply them in unique situations, the goal of STEM education—STEM literacy—has been achieved.

Volunteer actions. A volunteer can promote reflection in many ways. Simply concluding an activity with the simple question, "What did you learn today?" may be enough to promote members to reflect on what they learned. Preparing activities that build in opportunities for members to talk to one another about their experience or bringing in new or young members as a recruiting session with the current project participants also can be effective ways to provide opportunities.

Member experience. Volunteers facilitate the opportunity for members to talk about their experience, what they learned, how they will use that knowledge and skill in the future, how what they learned could help others, or when they will be able to apply what they learned in new ways. Invitations to present new ideas or showcase what was learned provide members with an outlet to reflect on their learning and begin to realize the application and relevance of their new knowledge – thus realizing their STEM literacy.

Implementation

For volunteers to utilize the ISI approach, it needs to be outlined in a way that is approachable for 4-H volunteers and 4-H professionals alike. 4-H volunteers and professionals can use the ISI approach during the program planning stages. Additionally, they can design activities in the project work with the approach. The seven key components can be considered through the following eight questions:

- Is the project activity problem- or activity-based?
- Are there connections between project work and STEM topics?
- Is the STEM that youth are going to be asked to do connected to the project goal?
- Are the resources used authentic?
- Are 4-H members encouraged to seek out more information related to STEM topics in the project?
- Are activities offered with multiple methods or variations for ability levels?
• Are 4-H members encouraged to ask critical questions about the project and STEM?
• Are 4-H members asked to relate learning to their own non-4-H project experiences?

Working through the eight questions will allow volunteers to craft activities in their project work. Additionally, exposing where STEM exists and how to highlight it is the objective of the ISI approach. The more STEM is identified, the more member and volunteer self-efficacy can increase as they become aware that they have actively engaged in doing STEM.

Implications and Conclusions

In the wake of the challenges of recruiting and training STEM 4-H volunteers, 4-H professionals and volunteers can use the ISI approach to better identify STEM-learning opportunities and plan how to apply and integrate STEM-related approaches to traditionally non-STEM projects. 4-H volunteers have the opportunity to identify STEM in traditionally non-STEM 4-H projects to help youth build STEM literacy. This change in practice by volunteers will enhance current programming to deliver STEM learning to youth that may not have an intrinsic interest in traditional STEM projects.

Identifying STEM in traditionally non-STEM projects provides an opportunity to introduce STEM learning to non-STEM oriented youth. Expanding the focus on STEM beyond traditional STEM projects allows 4-H to increase the number of youth engaging with STEM in authentic contexts to continue to enhance formal or academic STEM knowledge. This exposure could lead more youth to develop STEM literacy. An increase in STEM literacy prepares more youth for STEM careers leading to the potential for more youth to consider careers in STEM and STEM-related fields.

The authors posit that the proposed ISI approach can be used by 4-H volunteers to foster STEM literacy in non-STEM projects. The fundamentals of this approach have been introduced here. This approach has been shared so that practitioners across the country can implement the approach so that it may benefit from the refinement that comes from practitioner implementation and the resulting revision from application and research.

References


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How an Online Education Module Influences Attitudes toward Relationship Education: A Randomized Experiment

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Growing evidence suggests that many people do not see the differences between relationship education (RE) and couples therapy (CT). In fact, many lack information regarding the details and processes included in both RE and CT. If the differences are not understood, fewer people may be inclined to attend RE. RE has experienced various recruitment challenges over the years. The Theory of Planned Behavior illustrates how attitudes and intentionality are linked. If participants gain knowledge about a service, their attitudes about that service and intentions to participate change. For this study, an online module was created to provide information on the details and processes entailed in RE and CT, and the differences between RE and CT. A sample of 224 participants was randomly assigned to a treatment group (n = 112), who received a pretest, the module, and the posttest, or a control group (n = 112), who received the pretest and posttest only. Results showed that participation in the online module had significant effects on RE knowledge, attitudes, and intentions to participate.

Keywords: relationship education, theory of planned behavior, recruitment challenges, online research

Introduction

Relationship educators face challenges regarding the recruitment and retention of participants (Wood, Moore, Clarkwest, & Killewald, 2014). Recent research shows a lack of public awareness regarding what relationship education (RE) entails (e.g., Burr, Kuns, & Hubler, 2017). Within long-term romantic relationships, help-seeking behaviors tend to be clearly connected to relationship maintenance, including participation in RE and couples therapy (CT) (Stewart, Bradford, Higginbotham, & Skogrand, 2016). The current study explores how an online educational module influences attitudes toward RE and clarifies differences between RE and CT.

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Review of Literature

RE plays a role in providing participants with “four components: awareness, feedback, cognitive change, and skills training.” (Halford, Markman, Kling, & Stanley, 2003, p. 390.) RE provides knowledge and skills for romantic couples before and during marriages or in other committed romantic relationships (Markman & Rhoades, 2012). RE specifically provides couples with foundational knowledge that enhances the awareness of a need to empathize with a partner. RE often gives couples a chance to see their relationship in a new light. This cognitive change can enhance a couple’s relationship. The majority of RE programs provide a preventative context for couples to practice skills, including conflict resolution, negotiation, and other interpersonal skills (Hawkins, Stanley, Blanchard, & Albright, 2012).

Marriage and family therapy (MFT) is defined as “an intervention aimed at ameliorating not only relationship problems but also mental and emotional disorders within the context of family and larger social systems” (AAMFT, 2017). Therapy is distinct from education in that therapy settings include working with distress that is often more pronounced than that which is found in an educational setting (Doherty, 1995). Couples therapy (CT) is a form of MFT used to work out challenges on dyadic levels (AAMFT, n.d.).

The central implication behind the confusion between RE and CT is that if couples and individuals do not understand the difference between the two services, they may be less likely to attend RE. Participation in RE has been linked to increases in relationship quality and better communication among romantic couples (Hawkins, Blanchard, Baldwin, & Fawcett, 2008). RE may be associated with less stigma than therapy and may be a good way to reach diverse groups as RE provides a context for all couples who face typical relationship challenges (Doherty & Lamson, 2015; Markman & Rhoades, 2012). Resources on different relationship services, including RE and CT, can help the public make informed decisions about attending.

Often a main goal of Extension Services is to match program content with the needs of intended audiences (Goddard & Schramm, 2015). Extension educators have recognized the value of using online methods to offer couple programming (Goddard & Olsen, 2004). However, some educators may struggle with using online technology, which may impact online program offerings (O’Neill, Zumwalt, & Bechman, 2011). Further background and training in using online methods in programming can help educators become more comfortable using these resources to connect with audiences.

The theory of planned behavior (TPB; Ajzen, 1991) suggests that intention predicts behavior and attitudes shape intention. Applying TPB to RE programs, couples would be more likely to attend when holding positive attitudes toward the program. However, if there is confusion over the nature of RE, attitude toward RE could be negatively impacted. If RE recruitment efforts are to continue to improve, educating the public about the nature of RE, including principle differences between RE and CT, is a critical next step.
Online education programs impact couple relationship satisfaction and social-emotional health (Halford et al., 2017). Additionally, when online methods are used for informational/educational campaigns, awareness and attitudes of participants can be significantly impacted (Daniluk & Koert, 2015). This holds particularly true for media campaigns about premarital education (Hawkins, Higginbotham, & Hatch, 2016). For the current project, a brief narrated online module, citing current research, was designed as a pilot test by a team of Certified Family Life Educators (CFLEs) and a Licensed Marriage and Family Therapist (LMFT). The project participants were told that, by the end of the module, they would be able to define CT and RE and they would also know the primary differences between RE and CT. The module had three sections, one that defined CT, one that defined RE, and one that listed differences between CT and RE. A vignette of a couple was provided to demonstrate an example of what couples deal with in both CT and RE settings. Participants were randomly assigned to a treatment group, which received the online module, and a control group, which did not receive the module. True experimental designs, employing random assignment to treatment and control groups, like the design of this project, provide a more internally valid assessment of treatment effects (Campbell & Stanley, 1963). In this project, differences in attitudes about RE and intentions to attend were assessed between treatment and control groups.

**Current Study Hypotheses**

In this pilot project, the following hypotheses were proposed and tested:

1) There would be overall treatment effects on participants’ levels of RE knowledge and attitudes.
2) There would be overall treatment effects on participants’ intentions to attend RE and levels of helpfulness of RE.

**Methods**

**Sample**

The sample consisted of 224 individuals with an age range from 18-60 years ($M = 26; SD = 6.06$). The sample was primarily female (86%), and Caucasian (86%), with “Hispanic or Latino” (8%) and “Native American or Alaska Native” (3%) as the next two largest groups. In terms of relationship status, 41% reported “married” or “remarried,” 31% reported “single (never married),” 16% reported “committed relationship/dating,” 6% reported “divorced,” 5% reported “engaged,” and 4% reported “living with a romantic partner.” In terms of participants’ annual income, 41% reported up to $20,000, 22% reported $20,001-$40,000, 14% reported $40,001-$60,000, 9% reported $60,001-$80,000, and 14% reported $80,001+. For educational level, 69% reported “some college,” 16% reported “college graduate,” 6% reported “high school graduate or GED equivalency,” 4% reported “some post-graduate work,” 3% reported “post-graduate degree,” and 2% reported trade/technical/vocational training.”
Procedure

Upon IRB approval, the online surveys and module were created with the Qualtrics platform. This pilot study survey was disseminated through university courses that were mainly undergraduate Child and Family Studies classes at two universities, and it was also distributed via social media, primarily Facebook. Following consent, participants were randomly assigned to the treatment group (n = 112) or control group (n = 112). All participants completed an online survey (pretest), and the treatment group completed the module providing information on RE and CT. One day following completion of the online module by the treatment group, all participants completed the same survey as the posttest.

Measures

**RE knowledge.** The participants’ knowledge about RE was measured using a single item:

- I really don’t see a difference between relationship education and relationship therapy/counseling.

This item was taken from the Couple and Relationship Attitudes Index (Burr, Hubler, & Cottle, 2017). Participants indicated their level of agreement to this statement on a 10-point scale ranging from 1 = *strongly disagree* to 10 = *strongly agree*.

**RE attitudes.** The following four items were also taken from the Couple and Relationship Attitudes Index (Burr et al., 2017) to measure the attitude of participants about RE:

- I feel attending a relationship education class/workshop could be beneficial for my relationship/future relationship.
- Relationship education is only for couples having trouble.
- A strong couple would not need to attend a relationship education workshop/class.
- If I want to learn skills to help my relationship, I would not rely on a relationship education class/workshop.

Responses to these items were also on a 10-point scale ranging from 1 = *strongly disagree* to 10 = *strongly agree*.

**Intentions to attend RE.** The following items were created to measure the level of participants’ intentions to attend RE, based on the adaptations made by Blair and Córdova (2009) to items from the Health Belief Model Questionnaire (Sullivan, Pasch, Cornelius, & Cirigliano, 2004):

- I could see myself attending relationship education for 1 session.
- I could see myself attending relationship education for 4 sessions.
- How likely is it that you will attend relationship education in your lifetime?
Responses to the first two of these items were measured using a six-point scale of 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, and 6 = strongly agree. Responses to the last item were measured using a four-point scale ranging from 1 = not likely, 2 = somewhat likely, 3 = likely, and 4 = very likely.

**Helpfulness of RE and CT.** The following two items were created by the Co-PIs for this study to assess the participants’ perceptions about the helpfulness of RE and CT:

- Looking back on previous relationships, do you think participating in a relationship education program would have saved your relationship?
- Looking back on previous relationships, do you think couples therapy would have saved your relationship?

Responses to both of these items were measured using a seven-point scale with the following values: 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = strongly disagree, 6 = agree, and 7 = strongly agree.

**Results**

Analysis of covariance (ANCOVA) was used to assess posttest mean differences between the treatment and control groups adjusting for pretest scores (see Tables 1 and 2).

**Relationship Education Knowledge Results**

For the item, “I really don’t see a difference between relationship education and relationship therapy/counseling.” ANCOVA results showed a significant posttest mean difference between the control and treatment groups, $F(1, 221) = 12.76, p < .001$. The treatment group showed significantly less posttest agreement with the statement than the control group.

**Relationship Education Attitudes Results**

For the item, “I feel attending a relationship education class/workshop could be beneficial for my relationship/future relationship.” ANCOVA results showed a significant adjusted posttest mean difference between the control and treatment groups, $F(1, 220) = 5.16; p < .05$. The treatment group showed significantly more posttest agreement with the statement than the control group.

For the item, “Relationship education is only for couples having trouble.” ANCOVA results showed a significant adjusted posttest mean difference between the control and treatment groups $F(1, 221) = 7.16; p < .001$. The treatment group showed significantly less posttest agreement with the statement than the control group.

For the item, “A strong couple would NOT need to attend a relationship education workshop/class,” ANCOVA results showed a significant adjusted posttest mean difference
between the control and treatment groups, $F(1, 221) = 4.32; p < .05$. The treatment group showed significantly less posttest agreement with the statement than the control group.

For the item, “If I want to learn skills to help my relationship, I would NOT rely on a relationship education class/workshop,” ANCOVA results showed a significant adjusted posttest mean difference between the control and treatment groups, $F(1, 221) = 3.95, p < .05$. The treatment group showed significantly less posttest agreement with the statement than the control group.

### Table 1. Study ANCOVA Results for Knowledge and Attitudes

<table>
<thead>
<tr>
<th>Item</th>
<th>Class</th>
<th>Pretest Mean (Covariate)</th>
<th>Observed Posttest Mean (DV Mean)</th>
<th>Adjusted Posttest Mean (Estimated DV Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I really don’t see a difference between relationship education and relationship therapy/counseling.”</td>
<td>Treatment</td>
<td>4.00</td>
<td>3.00</td>
<td>2.63***</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.90</td>
<td>3.80</td>
<td>3.54</td>
</tr>
<tr>
<td>“I feel attending a relationship education class/workshop could be beneficial for my relationship/future relationship.”</td>
<td>Treatment</td>
<td>7.30</td>
<td>7.40</td>
<td>7.35*</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>7.10</td>
<td>6.80</td>
<td>6.87</td>
</tr>
<tr>
<td>“Relationship education is only for couples having trouble.”</td>
<td>Treatment</td>
<td>2.10</td>
<td>2.30</td>
<td>2.31***</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>2.42</td>
<td>3.00</td>
<td>2.89</td>
</tr>
<tr>
<td>“A strong couple would NOT need to attend a relationship education workshop/class.”</td>
<td>Treatment</td>
<td>2.30</td>
<td>2.50</td>
<td>2.74*</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.10</td>
<td>3.40</td>
<td>3.23</td>
</tr>
<tr>
<td>“If I want to learn skills to help my relationship, I would NOT rely on a relationship education class/workshop.”</td>
<td>Treatment</td>
<td>3.90</td>
<td>3.80</td>
<td>3.81*</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.80</td>
<td>4.30</td>
<td>4.33</td>
</tr>
</tbody>
</table>

*Note:* * p < .05, ** p < .01, *** p < .001.

### Intentions to Attend Relationship Education Results

For the items, “I could see myself attending relationship education for 1 session.” and “I could see myself attending relationship education for 4 sessions.” ANCOVA results did not show significant adjusted posttest mean differences between the control and treatment groups.

For the item, “How likely is it that you will attend relationship education in your lifetime?” ANCOVA results showed a significant adjusted posttest mean difference between the control
and treatment groups, $F(1, 221) = 4.70; p < .05$. The treatment group showed significantly more posttest likelihood of attendance than the control group.

**Helpfulness of Relationship Services Results**

For the item, “Looking back on previous relationships, do you think participating in a relationship education program would have saved your relationship?” ANCOVA results did not show a significant adjusted posttest mean difference between the control and treatment groups.

For the item, “Looking back on previous relationships, do you think couples therapy would have saved your relationship?” ANCOVA results showed a significant adjusted posttest mean difference between the control and treatment groups, $F(1, 221) = 7.61; p < .01$. The treatment group showed significantly more posttest agreement with the statement than the control group.

**Table 2. Study ANCOVA Results for Intentions and Helpfulness**

<table>
<thead>
<tr>
<th>Item</th>
<th>Class</th>
<th>Pretest Mean (Covariate)</th>
<th>Observed Posttest Mean (DV Mean)</th>
<th>Adjusted Posttest Mean (Estimated DV Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I could see myself attending relationship education for 1 session.”</td>
<td>Treatment</td>
<td>4.75</td>
<td>4.73</td>
<td>4.75</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>4.79</td>
<td>4.76</td>
<td>4.74</td>
</tr>
<tr>
<td>“I could see myself attending relationship education for 4 sessions.”</td>
<td>Revised</td>
<td>3.98</td>
<td>3.92</td>
<td>3.95</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>4.10</td>
<td>3.86</td>
<td>3.82</td>
</tr>
<tr>
<td>“How likely is it that you will attend relationship education in your lifetime?”</td>
<td>Treatment</td>
<td>2.80</td>
<td>2.94</td>
<td>2.93*</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>2.78</td>
<td>2.74</td>
<td>2.75</td>
</tr>
<tr>
<td>“Looking back on previous relationships, do you think participating in a relationship education program would have saved your relationship?”</td>
<td>Treatment</td>
<td>3.79</td>
<td>3.70</td>
<td>3.59</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.50</td>
<td>3.36</td>
<td>3.47</td>
</tr>
<tr>
<td>“Looking back on previous relationships, do you think couples therapy would have saved your relationship?”</td>
<td>Treatment</td>
<td>3.48</td>
<td>3.64</td>
<td>3.61**</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>3.40</td>
<td>3.20</td>
<td>3.23</td>
</tr>
</tbody>
</table>

*Note:* *p < .05, **p < .01, ***p < .001.
Discussion

The public’s awareness, attitudes, and behaviors tend to shift when informed about various issues (Daniluck & Koert, 2015). This link between online education and participant awareness and attitudes is supported by our findings in this test of educating the public about RE and CT, as the study hypotheses were largely confirmed.

The online module had the most marked effect on RE knowledge, as participants who completed the module reported less confusion about differences between RE and CT. Those who received the module also appeared to grasp more of the focus of RE as a preventative relationship service not only for couples having trouble. The results also show that those who received the module reported more positive attitudes toward RE as a way to improve the relationship, and this includes their reduced agreement with the statement that they “would NOT rely on RE” if they needed help. While the results do not show a large effect on intentions to attend RE, they show that those who received the module reported a greater likelihood of attending RE in their lifetime.

These results are in line with other public media campaigns which have been shown to alter awareness and participation in RE. Hawkins et al. (2016) found that a media campaign (with online components) increased awareness of and participation in premarital education in Utah. Some reports also show that the public is turning more to online sources for relationship information (Stewart et al., 2016), and with this growth, the potential for online relationship services to reach larger audiences is also growing. Additionally, many people may prefer the flexibility of online services as time demands are often cited as barriers to attending RE programs (Burr, Hubler, & Kuns, 2017).

Participants who completed the online module also reported stronger agreement that CT, but not RE, could have saved a past relationship. This points toward participants grasping more of the focus of CT (i.e., that CT could have assisted with more chronic issues that may have led to the end of a previous relationship). There may also be a connection between attending RE and attending CT. According to Williamson, Trail, Bradbury, and Karney (2014), those who attend RE are more likely to seek CT later for relationship issues. Hence, connecting back to the theory of planned behavior (TPB), as knowledge and attitudes toward RE improve, attendance levels of both RE and CT programs could increase.

Implications for Practitioners and Researchers

Other organizations may benefit from using the online module and/or methods used in this study. Extension education programs seek to implement services based on audience needs (Goddard & Schramm, 2015). Following TPB logic, as attitudes toward relationship services are better informed, a more effective decision can be made on whether a service meets the needs of the situation. In fact, participation in RE may enable couples to feel more comfortable seeking
therapy. We encourage those who work with Extension programs with families and other programs interested in engaging in further dialogue about our methods to contact the authors.

Researchers should continue to assess how important areas of the TPB are connected to relationship services. Although helpful as a guide, the theory has had relatively little application in the relationship services literature. Further testing is needed to understand how attitudes, intentions, and behaviors are connected in the decision-making process to attend relationship services.

**Limitations and Conclusion**

Much of the limitations of the study have to do with the non-diverse convenience sample composition of the study’s participants. The sample was primarily Caucasian, female, and fairly young. Also, a portion of this sample was undergraduate university students, meaning that their experiences with romantic relationships might be substantially different than the general public. The results of this study may not represent more diverse groups different from the study participants, and further research is needed with diverse audiences.

Additionally, all of the measures were single-item, which is a threat to measurement validity and reliability. Also, the following items, “Looking back on previous relationships, do you think participating in a relationship education program would have saved your relationship?” and “Looking back on previous relationships, do you think couples therapy would have saved your relationship?” were not assessed for their validity, including face validity. Future research would need to make clearer assessments of these two measures for future use.

However, this is the first known study investigating the effectiveness of a brief, online module providing information on RE and CT. The random assignment control group methodology used in the study adds internal validity to the results (Campbell & Stanley, 1963).

As confusion and misguided perceptions related to relationship services are reduced, couples are better able to make informed decisions that match their specific situation, and the propensity for these services to help increases.

**References**


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Brandon K. Burr is an Associate Professor of Family Life Education at the University of Central Oklahoma. His expertise is in attitudes toward relationship education and promoting prevention-focused family programs.
The Role of Social Support in Predicting Depression and Task Overload Among College Students

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Auburn University

Anthony J. Ferraro  
Kansas State University

Kayla Reed-Fitzke  
University of Iowa

Guided by the Relationships Motivation Theory, this short-term longitudinal study examined associations between social support (i.e., relatedness), depression, and stress in the form of task overload among emerging adult, university students (N = 184 at time one; N = 105 at time two; 69.2% female). Results from a series of path models indicated a significant relationship between decreased perceptions of social support over time and an increase in perceived task overload with significant mediating effects through depressive symptomology. Implications for counseling services as well as intervention and awareness points for university professionals are discussed.

Keywords: depression, stress, social support, emerging adult

Introduction

Transitioning to college presents anticipated and unforeseen challenges for individuals as this decision to pursue higher education results in substantial changes to ascribed responsibilities, personal interactions, and social environments, as many relocate to attend school (Hicks & Heastie, 2008). Thriving in college requires that students manage academic course loads, social expectations, and, in some cases, financial responsibilities, typically independent of one’s family of origin (Geisner, Mallett, & Kilmer, 2012). Effectively balancing these expectations can serve as a salient stressor for both new and established students both within and outside the college environment (e.g., dealing with household chores, learning to balance responsibilities revolving around paid work, having to take extra remedial classes due to being less prepared for degree course requirements; Astin, 2005). College students who struggle to effectively handle stress face increased symptomology, such as depression and poor academic performance (Jackson & Finney, 2002). In fact, students today are at a higher risk of psychopathology than previous

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generations (Twenge et al., 2010), and mental health challenges enhance the risk of not completing college. Given that about half of college students drop out before degree completion, identifying factors that promote student well-being and their potential to be successful in college is essential (National Student Clearinghouse Research Center, 2014; Wolf, Perkins, Butler-Barnes, & Walker, 2017).

One factor that has the potential to influence how stress is managed, particularly in the context of transitions, is one’s social relationships, as individuals live their lives interdependently throughout the life-course (e.g., making friends, getting married; Elder, Johnson, & Crosnoe, 2003). Research has indicated that individuals transitioning into different development stages had more challenges when social support networks were perceived as weak (e.g., McKee, Stapleton, & Pidgeon, 2017). Conversely, research consistently demonstrates that healthy relationships are a salient predictor of positive mental health among emerging adult college students (e.g., Li, Albert, & Dwelle, 2014; Reed, Ferraro, Lucier-Greer, & Barber, 2015). Feeling connected to others and receiving support from a high-quality peer network, a concept known as relatedness, can buffer the effects of life stressors, such as pursuing higher education (Chao, 2012).

There is a need to understand and promote social well-being and individual functioning among emerging adults in collegiate settings. The number of individuals seeking higher education continues to increase; as many as 21 million emerging adults choose to attend college, and estimates suggest that number is rising (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2015). Additionally, emerging adulthood is a developmental period characterized by autonomy-seeking, differentiation, and increased personal responsibilities (Arnett, 2015). Enhanced autonomy and differentiating from one’s family of origin does not infer that emerging adults are required to manage life stressors alone (Deci & Ryan, 2014). Rather suppositions are that autonomy and healthy development are facilitated by supportive relationships.

Relationships Motivation Theory (RMT; Deci & Ryan, 2014) posits that individuals with high-quality social support (i.e., healthy relationships that consist of reliable friendships, showing affection, and giving and receiving tangible and emotional support; Barnett, Scaramella, Neppl, Ontai, & Conger, 2010) experience better mental health and individual functioning, particularly in the context of turbulence and transitions (Deci & Ryan, 2014). For college students, an inability to maintain secure attachments in close relationships is related to an increased risk for psychological distress, including depression and anxiety (Lopez, Mitchell, & Gormley, 2002). Poor social support is also predictive of higher rates of academic stress (Rayle & Chung, 2007). It is not uncommon for students to feel overtasked with responsibilities required of them, and this stress is inversely related to school performance and academic success (Shankar & Park, 2016).
This study extends our understanding of how peer relationships in emerging adulthood are associated with college student well-being. Specifically, we examine how changes in social support (i.e., decreases in relatedness) are associated directly and indirectly with perceptions of well-being (i.e., perceptions of task overload). Using a short-term longitudinal design, we posited that experiencing a significant decline in social support over a short period of time would be associated with increased depressive symptomology and heightened perceptions of task overload, conceptualized as feeling overwhelmed by daily activities and as though there is not have enough time to complete projects. Guided by RMT (which postulates that quality relationships within one’s current environment are expected to promote optimal human functioning; see Deci & Ryan, 2000; 2014; Ryan & Deci, 2002) and extant literature, we hypothesized that decreased perceptions of social support would be associated with increased perceptions of task overload (H1) and that this relationship would be mediated by depressive symptoms (H2).

Method

Participants were undergraduate students from a large university in the southeastern United States who were surveyed at two time points over the course of a 16-week semester. The first wave of data collection occurred within the first two weeks of the semester and the second wave of data collection occurred approximately 10-12 weeks later (N = 184 at Time 1; N = 105 at Time 2). Participants were recruited from an introductory course that serves as a university-wide requirement. Accordingly, students from diverse majors completed this course as part of their degree requirements. Specifically, 21.8% of students were age 18 at the time of the study, 35.2% were age 19, 19.7% were age 20, 10.6% were age 21, and the remaining individuals were between the ages 22 through 25 (approximately 12% of the sample). Most participants were full-time students (95.8%). The majority of participants identified as female (69.2%) and as Caucasian/White (76.9%); fewer reported their race/ethnicity as Hispanic/Latino (9.8%), African-American/Black (7.7%), Asian-American (2.8%), or bi-racial (2.1%). Most participants reported not working for pay (61.5%) or working part-time (35.7%); few reported being employed full-time (2.8%). Additionally, a majority of participants reported that they lived with nonfamilial roommates (62%). Approval for the study was granted by the University’s Institutional Review Board. Informed consent was provided to participants online before the survey. After completing the second survey, students in eligible classes were provided minimal extra credit (< 1% of final grade).

Measures

Study measures are described below and descriptive statistics of each measure at Time 1 and Time 2 are provided in Table 1.

Decreased perceptions of social support. Perceived social support was examined via three subscales (Reliable Alliance, Attachment, and Social Integration) from the Social Provisions
Scale (SPS) which together comprise the construct of Affectional Ties (Cutrona & Russell 1987). The SPS has demonstrated internal reliability, construct validity, and factorial validity in multiple populations ranging from adolescents to the elderly (Cutrona & Russell, 1987; Motl, Dishman, Saunders, Dowda, & Pate, 2004). These subscales consist of 12 items that were used to assess multiple aspects of an individual’s social support networks. Sample items included: “There are people I can count on in an emergency” (Reliable Alliance), “I have close relationships that provide me with a sense of emotional security and well-being” (Attachment), and “There are people who enjoy the same social activities I do” (Social Integration). Responses were 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree; participants were asked to respond to these items at both waves of data collection. Responses were averaged, with higher scores indicating higher levels of perceived social provisions (Time 1: M = 3.39, SD = .53, α = .76; Time 2: M = 3.28, SD = .62, α = .73). Participants responses were combined and dichotomized to represent those who: (1) had lower scores on the SPS at Time 2 indicating decreased perceptions of social provisions (n = 41; 42.3%); or (0) experienced no change or had higher levels of social provisions at Time 2 (n = 56; 57.7%). This allowed for evaluation of a general sense of change as opposed to a rate of change across time. Subsequently, by evaluating a general sense of change, this assessment strategy allows for the assessment of a specific aspect of the independent variable of interest (in this case decreased perceptions of social support) and its association with the mediating and dependent variables of the model.

Depressive symptoms. Depressive symptoms were examined with a ten-item abbreviated version of the Center for Epidemiologic Studies Depression Scale (CES-D; Irwin Haydari, & Oxman, 1999; Radloff 1977). The CES-D has demonstrated good internal reliability, criterion validity, and convergent validity among various populations (Björgvinsson, Kertz, Bigda-Peyton, McCoy, & Aderka, 2013; Irwin et al. 1999; Cheung, Liu, & Yip, 2007). These ten items were used to assess how participants felt or behaved throughout the prior week. Sample items included: “I felt lonely” and “I had trouble keeping my mind on what I was doing.” Responses were 0 = rarely or none of the time, 1 = some or a little of the time, 2 = occasionally or a moderate amount of time, and 3 = most or all of the time; participants were asked to respond to these items at both waves of data collection. Higher scores indicate higher levels of depressive symptomology (Time 1: M = 1.76, SD = .51, α = .80; Time 2: M =1.84, SD = .59, α = .83). Change in depressive symptomology was measured by examining Time 2 symptomology while controlling for Time 1 symptomology. This assessment strategy allows for the assessment of effects that occur independently of variation explained by prior levels of depressive symptomology.

Task overload. Task overload was examined with the 7-item Stress subscale from the Rhode Island Stress and Coping Inventory (RISCI; Fava, Ruggiero, & Grimley, 1998). The RISCI has demonstrated factorial validity as well as internal reliability among individuals from early and older adulthood (Evers et al., 2006; Fava et al., 1998). This subscale assessed participants’ feelings of being overwhelmed and/or pressured throughout the last month and served as the
study outcome variable. Sample items included: “I felt there was not enough time to complete my daily tasks” and “I felt overwhelmed.” Responses were 1 = never, 2 = seldom, 3 = occasionally, 4 = often, and 5 = frequently; participants were asked to respond to these items at both waves of data collection. Higher scores indicate higher levels of perceived task overload (Time 1: $M = 2.91$, $SD = .74$, $\alpha = .83$; Time 2: $M = 2.99$, $SD = .84$, $\alpha = .86$). Change in task overload was measured by examining Time 2 reports, controlling for Time 1 reports, allowing for the assessment of effects that occur independently of variation explained by prior levels of task overload.

Table 1. Descriptive Statistics for Observed Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Range</th>
<th>$\alpha$</th>
<th>Mean</th>
<th>$SD$</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Support (Time 1)</td>
<td>1-4</td>
<td>.76</td>
<td>3.39</td>
<td>.53</td>
<td>.527</td>
<td>.494</td>
</tr>
<tr>
<td>Social Support (Time 2)</td>
<td>1-4</td>
<td>.73</td>
<td>3.28</td>
<td>.62</td>
<td>.626</td>
<td>-.545</td>
</tr>
<tr>
<td>Depressive Symptoms (Time 1)</td>
<td>0-3</td>
<td>.80</td>
<td>1.76</td>
<td>.51</td>
<td>.528</td>
<td>.141</td>
</tr>
<tr>
<td>Depressive Symptoms (Time 2)</td>
<td>0-3</td>
<td>.83</td>
<td>1.84</td>
<td>.59</td>
<td>.592</td>
<td>.729</td>
</tr>
<tr>
<td>Task Overload (Time 1)</td>
<td>1-5</td>
<td>.83</td>
<td>2.91</td>
<td>.74</td>
<td>.748</td>
<td>-.587</td>
</tr>
<tr>
<td>Task Overload (Time 2)</td>
<td>1-5</td>
<td>.86</td>
<td>2.99</td>
<td>.84</td>
<td>.842</td>
<td>.041</td>
</tr>
</tbody>
</table>

Note: Range = scale Likert response, $\alpha$ = Cronbach’s Alpha Coefficient, $SD$ = standard deviation

Data Analyses

To test the study hypotheses a series of structural equation models (SEM) were conducted using AMOS 23, which is an extension program of SPSS (Arbuckle, 2014). SEM allows for all observable variables to be modeled simultaneously, including both direct and indirect pathways of variables (i.e., SEM allows researchers to test for mediation), and provides indices to determine if the variables fit the data in the hypothesized manner (Lei & Wu, 2007). Following suggestions from the extant literature, Full Information Maximum Likelihood estimation was used to account for missing data (Enders & Bandalos, 2001). Little's (1988) Missing Completely at Random test was nonsignificant ($\chi^2 = 31.08$, $df = 32, p = .51$), indicating data were missing completely at random. Additionally, extant literature has suggested certain demographic variables have the potential to uniquely influence well-being outcomes, particularly, gender and student status (i.e., amount of course load). Specifically, females have been shown to report higher levels of depression symptoms than males (Patton et al., 2008) and students whose course load is classified as part-time tend to report higher levels of stress (e.g., time management strains when trying to manage work and studying) than full-time students (MacCann, Fogarty, & Roberts, 2012). Subsequently, during preliminary analysis, gender and student status were examined by use of bivariate correlations to identify if these variables should be included as control variables within the subsequent SEM. For gender, a single dichotomized variable was coded to reflect those that identified as male (0) and those that identified as female (1). For student status, a single dichotomized variable was coded as 0 to reflect those who identified as part-time students (less than 12 semester hours of course load) and 1 to reflect those that identified as full-time students (between 12 and 18 semester hours of course load).
Standardized beta coefficients ($\beta$) and accompanying $p$-values were examined within the SEM as $\beta$ and $p$-values reflect the magnitude, direction of effect (positive or negative), and significance of the relationships between variables within the model (Yuan & Bentler, 2006). By analyzing these pathways with standardized estimates, researchers can compare unit changes across multiple variables that originally had different units of measurement (Yuan & Bentler, 2006). Specifically, for this study, the significance level of the $\beta$ pathways were examined between the predictor variable (decreased perceptions of social support), the mediating variable (depressive symptoms), and the outcome variable (perceptions of task overload), with $p < .05$ indicating a unit change in one variable was significantly associated with a unit change in another variable. The comparative fit index (CFI) and root mean square error approximation (RMSEA) were used to assess model goodness-of-fit; these indices reflect the examination of the model the researchers specified, and whether or not the “specified model” fits the nature of the data (Lei & Wu, 2007). CFI values at .95 or above suggest good fit (Hu & Bentler, 1999) indicating the hypothesized model outperformed the baseline model, which assumes there is no connection between the observed variables (Hooper, Coughlan, & Mullen, 2008). CFI values between .90 and .95 suggest adequate fit, and values lower than .90 suggest poor fit (Hooper et al., 2008; Hu & Bentler, 1999). RMSEA values at or below .08 suggest adequate fit and values at or below .06 suggest good fit (Hu & Bentler, 1999), indicating parameter estimates for the hypothesized model are a good match to the population covariance matrix (Hooper et al., 2008). Additionally, RMSEA values above .08 suggest poor fit (Hooper et al., 2008; Hu & Bentler, 1999).

Finally, the Sobel test was used to examine indirect effects, a widely used method for examining the significance of the indirect effect among normally distributed samples (Sobel, 1982). Samples can be examined for normality by evaluating skewness and kurtosis values, with kurtosis values below 7 and skewness values below 2 suggesting normal distribution (Curran, West, & Finch, 1996). In this study, kurtosis values (ranging from -.587 to .729) and skewness values (ranging from .527 to .842) fell within acceptable ranges, indicating that the variables were normally distributed (see Table 1), and thus, the Sobel test was deemed appropriate. The Sobel test determines how many standard deviations the mediating variable of interest is from a mean value baseline score of zero, known as a Z-score ($z$) and if $z$ has a $p$-value below .05, which would indicate that the indirect effect has a value that is significantly different from zero (Preacher & Leonardelli, 2001; Sobel, 1982). In other words, a significant indirect effect ($z$) would suggest that depressive symptomology was a salient mechanism through which lower levels of social support were associated with higher levels of task overload.

**Results**

Correlations are provided in Table 2. Generally, a majority of the variables used for SEM were moderately and significantly correlated (ranging from -.01 to .55; Moore, 2010) indicating related but distinct constructs with some variation over time. Additionally, two demographic variables (gender and student status) were assessed as potential covariates. Neither gender nor
student status was found to be significantly correlated with Time 1 or Time 2 social support, depressive symptoms, or task overload (see Table 2), and thus, neither demographic variable was included in the subsequent SEM.

A direct path model was fit to examine H1. As hypothesized, those who experienced decreased perceptions of social support also reported increased perceptions of task overload ($\beta = .25, p < .01$). Next, a mediated path model was fitted to examine H2 (see Figure 1). Model fit was CFI = .95 and RMSEA = .08. As hypothesized, decreased perceptions of social support were significantly related to increased depressive symptoms ($\beta = .29, p < .001$), and increased depressive symptoms were significantly related to increased task overload ($\beta = .28, p < .001$). Additionally, the link between decreased perceptions of social support and changes in task overload became nonsignificant ($\beta = .13, p = \text{ns}$) when the mediator (depressive symptoms) was included in the model.

The Sobel test was used to examine the statistical significance of the indirect effect (depressive symptoms). The post hoc analysis revealed that depressive symptoms significantly mediated the path between decreased social support and increased task overload ($z = 2.39, p = .01$).

Figure 1. Mediation Model Illustrating the Relationship between Social Support and Changes in Task Overload as Mediated by Changes in Depressive Symptomology among College Students

<table>
<thead>
<tr>
<th>Decreased Perceptions of Social Support Between Time 1 &amp; Time 2</th>
<th>Time 2 Task overload</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2 = 36.0%$</td>
</tr>
<tr>
<td>Time 1 Depressive Symptoms</td>
<td></td>
</tr>
<tr>
<td>$R^2 = 34.3%$</td>
<td></td>
</tr>
<tr>
<td>Time 1 Task overload</td>
<td>$R^2 = 36.0%$</td>
</tr>
</tbody>
</table>

Note: Standardized path coefficients presented; ***$p < .001$; Model fit: (CFI = .95; RMSEA = .08).
Table 2. Correlation Matrix for All Study Variables (Time 1 N = 184; Time 2 N = 105)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social Support (T1)</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Social Support (T2)</td>
<td>.450*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Depressive Symptoms (T1)</td>
<td>-.324**</td>
<td>-.275**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Depressive Symptoms (T2)</td>
<td>-.314**</td>
<td>-.520**</td>
<td>.543**</td>
<td>-</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>5. Task Overload (T1)</td>
<td>-.106</td>
<td>-.006</td>
<td>.398**</td>
<td>.231*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Task Overload (T2)</td>
<td>-.220*</td>
<td>-.153</td>
<td>.248*</td>
<td>-.510**</td>
<td>-</td>
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<td>7. Gender</td>
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<td>.033</td>
<td>.095</td>
<td>.100</td>
<td>.089</td>
<td>.154</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>8. Student Status</td>
<td>-.143</td>
<td>-.054</td>
<td>-.028</td>
<td>-.021</td>
<td>-.165</td>
<td>-.126</td>
<td>.064</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: *p < .05; **p < .01. T1 = Time 1, T2 = Time 2

Discussion

This short-term longitudinal study builds on prior research and evaluates indicators of well-being in the context of the Relationships Motivation Theory (RMT; Deci & Ryan, 2014) to determine whether and how meaningful relationships were associated with outcomes among collegiate emerging adults (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). The results demonstrated that decreased perceptions of social support were associated with poorer well-being among emerging adults within this sample, specifically higher perceptions of task overload, providing support for the first hypothesis.

Previous research suggests that stress is negatively associated with emerging adults functioning (Rayle & Chung, 2007). The current findings advance this understanding, suggesting that social support plays a role in perceived task overload during college.

The relationship between social support and task overload was fully mediated by depressive symptoms, providing support for the second hypothesis. Previous research has explored the adverse effects that depression has on emerging adults’ well-being (Geisner et al., 2012), with the current findings suggesting this relationship is particularly salient during college where resources and social support are frequently changing (Small, Pamphile, & McMahan, 2015). Declines in meaningful social relationships appear to manifest internally as individuals report declines in mental health. Consequently, the depletion of psychological resources manifests externally as emerging adults struggle to complete nondiscretionary daily tasks.

Implications

Counseling services can serve as a beneficial avenue for students to discretely share strains generally related to the college experience as well as specific stressors that emerge during the academic year. University counseling and support services provide a host of benefits related to increased retention rates in students and improvements in emerging adult mental health outcomes (Draper, Jennings, Baron, Erdur, & Shankar, 2002; Lee, Olson, Locke, Michelson, & Odes, 2009).
This study suggests that it may benefit student well-being to encourage them to maintain healthy connections with others and letting them know that becoming autonomous and independent adults does not mean operating in isolation. When considering the importance of meaningful relationships on functioning, college faculty, staff, and support services might encourage students to seek out supportive social environments that provide meaningful connections (e.g., student organizations; Holzweiss, Rahn, & Wickline, 2007). By encouraging students to engage in environments that promote the formation of new relationships, well-being may be enhanced as students perceive their need for relatedness as being met through peer support.

Isolation and changes in peer groups may also serve as a warning signal for professionals. Emerging adults may perceive isolation to be a coping mechanism when faced with stressors (e.g., Reed, Lucier-Greer, & Parker, 2016). College counselors might assess for changes in social networks as well as mental health when creating treatment plans for students who present with stress related to task overload. Additionally, to address relationship maintenance and social integration, professionals will benefit from having a working knowledge of student clubs, associations, and organizations available throughout campus. These student groups are accessible social environments within higher education that promote meaningful connections for emerging adults who share similar interests.

Theoretically, socially supportive environments are positioned to promote the basic psychological need of relatedness (Deci & Ryan, 2014), and this has been empirically supported. For example, emerging adults report fewer adverse psychological symptoms as a result of their involvement in student organizations (Mahmoud, Staten, Hall, & Lennie, 2012). Engagement in activities provides an environment to foster meaningful relationships.

**Limitations and Future Directions**

There are several factors to note in the interpretation of these findings. First, generalizability is limited due to the use of a single university convenience sample. The sample reflects students from diverse majors and multiple class levels, but it was predominantly comprised of white, female students. This may inflate findings as some prior research has indicated that associations between social support and risks for psychological adversity are higher for females as compared to males (Kendler, Myers, & Prescott, 2005). Although in the present study, gender was not significantly correlated with any variables, future studies might consider recruiting a more diverse sample to examine group differences between individuals that are underrepresented in this study (e.g., males) to confirm these findings. By recruiting a more diverse sample, researchers can assess if the present findings are congruent with recent research that suggests gender gaps in psychological factors may narrow throughout the transition to adulthood (Thompson & Bland, 2018; Vuong, Brown-Welty, & Tracz, 2010) as opposed to earlier research that suggests otherwise (Kendler et al., 2005; Patton et al., 2008).
Prior research has indicated that student course load (e.g., full-time vs. part-time status) is associated with salient factors for emerging adult college students, including time management and grade point average (MacCann et al., 2012). Subsequently, we examined correlations between student course load and the study variables to determine if it should be accounted for in the SEM. Student status was not significantly correlated with any study variables and thus was not included in the primary analysis. However, we acknowledge that student course load status is one of several demographic variables that may be associated with emerging adult outcomes. For example, participants in this study were not asked to explicitly identify their area of degree study or their specific student classification (e.g., freshman versus senior). Future research could assess college demographics such as area of study and student classification, since some research has demonstrated these factors are associated with well-being outcomes in emerging adults (Ajinkya, Schaus, & Deichsen, 2016; Cox, Ross-Stewart, & Foltz, 2017; Halter, 2004).

Furthermore, as with any longitudinal study, there was attrition from Time 1 to Time 2. Best practices in missing data were applied, such that Full Information Maximum Likelihood estimates were used allowing us to use all available information to estimate the model, but response rates on the Time 2 data collection were modest. Future studies might consider techniques to enhance response rates and minimize attrition, including incentivized participation and more comprehensive follow-up communications.

Next, this study examined social support based on interactions between others within multiples types of social networks. Specifically, the Social Provisions Scale prompt states, “I want you to think about your current relationship with friends, family members, coworkers, community members, and so on. Please indicate to what extent you agree that each statement describes your current relationships with other people.” Subsequently, this assessment of social support taps into a global framework of relatedness. Future studies may consider specific types of social support networks (e.g., church friends, dorm-mates, college club sports teammates, etc.) in addition to a global sense of support. By investigating specific types of social networks, researchers may be able to better understand which “important others” are more salient in promoting positive outcomes for emerging adults within college settings and provide targeted interventions to those specific environments.

Finally, Time 2 data collection occurred approximately 10-12 weeks after the start of an academic semester. This is important to note, as responses may have been influenced by the timing of the semester (e.g., final projects; exams). Future studies could consider collecting data at varying time points throughout the semester to examine if similar results occur.

Ultimately, this study advances understanding of how specific well-being factors (social support and depression) have important implications for task overload among collegiate emerging adults. Meaningful relationships play a significant role in mental health trajectories and the ability to complete the necessary tasks associated with being a student and an autonomous individual.
References


*James M. Duncan’s* research interests are to better understand factors that influence individual and family functioning among military and civilian populations.

*Mallory Lucier-Greer’s* research focuses on family stress, protective family processes, intimate/couple relationships, and youth development within the context of the family.

*Anthony J. Ferraro’s* research focuses on familial relationships during periods of transition, both structural (e.g., divorce) and developmental (e.g., placement in long term).

*Kayla Reed-Fitzke’s* research focuses on promoting well-being during emerging adulthood by examining intersections of risk and resilience as points of prevention or intervention.
Burnout is identified as an individual work-related outcome that plagues educators within Cooperative Extension. Extension educators are particularly susceptible to burnout due to the unique set of demands and stressors they face, including geographic isolation, long work hours, prolonged driving times, and emotionally demanding interactions with clients, peers, local government, and administration. This review examines the literature relevant to Extension and burnout, discusses predictors and outcomes of burnout, and examines theories that have been used to investigate burnout. While studies have shed light on burnout within Extension from discipline and individual state perspectives, this review identifies the need for an updated examination of burnout with a regional or national scope. Additionally, job demands-resources theory is identified as a lens to better understand and explain burnout among Extension educators. As a prevalent issue that requires deeper understanding, the job demands-resources theory comprises principles from work motivation, job design, and job stress literatures and has been used to understand, explain, and make predictions about job burnout. At a time when issues related to Extension are front and center in academe and mainstream media, understanding burnout can help support the continued success of Extension. Other implications are also discussed.

Keywords: job characteristics, job demands, job resources, burnout, engagement, turnover intention, Cooperative Extension, Extension educators

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Introduction

For more than a century, Cooperative Extension (Extension) has provided nonformal education and outreach throughout the United States. This long history of service is anchored in the successful efforts of the Extension educator, who provides the knowledge, resources, and tools to individuals, families, and communities who need them (Seevers, Graham, Gamon, & Conklin, 1997; U.S. Department of Agriculture, 2017). At a time when agricultural, nutritional, financial, and environmental challenges are mounting, Extension is as relevant today as ever. However, organizational changes of recent years present potential barriers to the continued success of Extension. These changes can manifest personnel-related challenges with burnout, employee engagement, and turnover among the Extension workforce.

Americans spend one-third of their waking hours at work (Saks, 2006). As a defining part of life, studying the work environment is important. The Extension literature primarily focuses on program implementation, delivery, and evaluation; however, limited research exists on personnel-related issues, such as stress (Bartholomew & Smith, 1990; Bradley, Driscoll, & Bardon, 2012; Ezell, 2003; Fetsch & Kennington, 1997), burnout (Ensle, 2005; Igodan & Newcomb, 1986; Place, Jacob, Summerhill, & Arrington, 2000), work-life balance (Boltes, Lippke, & Gregory, 1995; Kutilek, Conklin, & Gunderson, 2002; Rousan & Henderson, 1996), job satisfaction (Nestor & Leary, 2000), and turnover (Ensle, 2005; Kutilek et al., 2002; Mowbray, 2002; Safrit & Owen, 2010; Strong & Harder, 2009). Among these issues, burnout has been both prevalent and consistent over the last three decades within the Extension literature (Ensle, 2005; Igodan & Newcomb, 1986; Place et al., 2000).

Defined as a persistent, negative, work-related state of mind (Leiter & Maslach, 1999), burnout has reached epidemic proportions within U.S. organizations and is sabotaging workforce retention (Wilkie, 2017). As a helping professional facing unique job characteristics, such as geographic isolation, prolonged driving times, and emotionally demanding interactions with clients, peers, local government, and administration, Extension educators have increased susceptibility to burnout. While nationally aggregated data do not exist, burnout has been identified as a predictor of turnover within Extension (Kutilek, 2000). In fact, Kutilek (2000) suggested the net cost of turnover for Extension was $80,000 per employee. Chandler (2005) purported that the cost to replace an educator, with an annual salary of $30,000, ranged between $7,185 and $30,000. While the research suggests that burnout has an indirect effect on turnover among Extension educators, a research theory identifying or investigating predictors and consequences of burnout among this population was not identified.

Through a review of the literature relevant to Extension and burnout, this article describes the current state of research on burnout among Extension educators and examines theories that have been used to investigate burnout in an effort to understand the current context of burnout among
Extension educators. This review offers a theory that may be useful in identifying the predictors and consequences of burnout.

**Methods**

Literature for this research synthesis was obtained through an extensive search of online databases and other published resources relevant to Extension and burnout using a keyword search of Cooperative Extension, Extension educator, Extension agent, burnout, workplace, job characteristics, job demands, job resources, and turnover. Peer-reviewed journal articles, including Journal of Extension and other Extension-related journals as well as working papers and books published by December 2016 were reviewed. Of the seventy publications that were reviewed, 30 were specific to the Extension context.

**Burnout**

Studied for more than 40 years, the term “burnout” was first used by Freudenberger (1974) to explain the phenomena of physical, emotional, and mental exhaustion as a consequence of severe and unresolved job stress among helping professionals (Weisberg & Sagie, 1999). Maslach (1976) characterized burnout as often accompanied by distress, reduced effectiveness, decreased motivation, and dysfunctional attitudes and behaviors at work. During the 1980s, there was an increased awareness and greater discussion of stress and burnout at work (Farber, 1983). Maslach (1982) later defined burnout as a psychological syndrome involving chronic exhaustion, cynicism, and reduced personal efficacy that often occurs among individuals who work with people (Maslach, Jackson, & Leiter, 1986). Burnout is typically measured by the Maslach Burnout Inventory (MBI), which examines burnout in three dimensions: exhaustion, cynicism, and reduced professional efficacy (Maslach et al., 1986). As the most widely used measure of burnout, the MBI has three specific versions (General Survey, Human Services Survey, and Educators Survey) based on more than 25 years of research of various occupations.

Exhaustion, the first and most prevalent dimension of burnout, refers to the draining of emotional resources, feelings of tiredness, and chronic fatigue resulting from work overload. Chronic exhaustion can lead to cynicism, which represents distancing oneself from and developing negative attitudes towards work as well as depersonalization. According to Maslach (1998), distancing is an immediate reaction to exhaustion. When employees face overwhelming workplace demands and develop cynicism, their professional efficacy can begin to erode. When efficacy is compromised, employees may realize a loss of competence, confidence, and productivity. More simply put, burnout can be viewed as the depletion of physical and mental resources from excessive and prolonged levels of job stress and strain (Igodan & Newcomb, 1986).

Burnout represents an individual and organizational challenge that needs to be intentionally mitigated (Schaufeli, Enzmann, & Girault, 1993). Researchers have indicated that burnout exists
when heavy workload is combined with lack of personal control, insufficient rewards, absence of fairness, lack of community, or conflicting values (Maslach & Leiter, 1997), personality factors such as irrational beliefs or expectations (Pines, 2002), and lack of job significance and meaningfulness (Azeem & Nazir, 2008).

**Predictors and Outcomes of Burnout**

Organizational research suggests burnout is a consequence of chronic job demands (Leiter & Maslach, 1999) and can lead to physical and emotional illness, increased job turnover, absenteeism, and reduced productivity (Boles, Dean, Ricks, Short, & Wang, 2000), increased use of sick leave; mental health problems; low morale; reduced job satisfaction and work engagement (Rothmann, 2003), and deterioration in the quality of care or service (Maslach & Jackson, 1986).

Extension research identified several factors that may contribute to burnout. Ensle (2005) described burnout as a consequence to managing multiple stakeholders and levels of accountability. Other factors included increased service demands, funding and grantsmanship requirements (Ensle, 2005), travel demands and long work hours that include nights, weekends, and holidays (Peters, Zvonkovic, & Bowman, 2008), as well as heavy workloads, work unit climate, individual needs and values, and the external environment (Harder, Gouldthorpe, & Goodwin, 2015).

Igodan and Newcomb (1986) concluded that all agents will experience burnout at one time or another. The identified predictors of burnout, in order of strength, were discipline, age, and marital status. Much of the Extension research examined burnout within specific states and disciplines. For example, Fetsch, Flashman, and Jeffiers (1984) examined stress levels across disciplines among Kentucky educators. Findings from this study suggested 4-H educators have higher stress levels than educators in other program areas (Fetsch et al., 1984). This study supported clear discipline delineation as suggested by Manton and Van Es (1985) where agricultural educators experienced the narrowest set of stressors and demands while family and consumer sciences (FCS) and 4-H educators experienced the heaviest and broadest set of demands. In a study of Ohioan educators, Rousan and Henderson (1996) found agents voluntarily left Extension because of other life priorities, family obligations, and misalignment between the amount of work and levels of compensation. In other words, these findings suggest a misalignment between work and home, which is also related to burnout (Rousan & Henderson, 1996). Based on the Maslach Burnout Inventory (Maslach et al, 1986), Sears, Urizar, and Evans (2000) found a significant proportion of Extension employees faced emotional fatigue, professional ineffectiveness, and depression.

Arnold and Place (2010) examined burnout further among Florida agents and identified negative contributing factors such lack of direction, personal work management issues, job pressures, mandated work requirements, job performance measures, salary disparities, career overload, self-
induced stress, lack of support, unequal recognition, insufficient pay raises, reporting difficulties, and excessive committee obligations. Harder et al. (2015) identified high or heavy workload as a predictor of burnout, with two-thirds of the respondents (66.4%, n = 77) reporting that they overextended themselves with their workload. The study also found that only 38% (n = 44) of responding educators indicated they were able to manage a healthy balance between work and their personal lives.

While many organizational outcomes have been associated with burnout, Ensle (2005) and Harder et al. (2015) suggested a pattern of turnover can emerge when burnout is not addressed. Turnover of Extension educators often results in losses of critical knowledge and expertise (Bradley et al., 2012; Ensle, 2005) and may create disruptions and interruptions in programming resulting in jeopardized client service (Fischer, 2009; Strong & Harder, 2009), compromised organizational objectives (Broadbridge, 2002), and substantial financial and time strains (Kutilek, 2000). Additionally, turnover increases resource requirements for new agent recruitment and training (Arnold & Place, 2010), increases workloads for remaining staff (Borr & Young, 2010; Ensle, 2005; Hendrie, 2004), lowers employee morale or engagement, weakens relationship continuity, and increases problems with quality or productivity (Emberland & Rundmo, 2010; Wright & Bonett, 2007). Employee turnover has been found to have a profound influence upon organizational effectiveness and competitive advantage (Jeswani & Dave, 2012). Costs associated with hiring, orientation, and training range from 90% to 200% of the average annual salary (Cascio, 2006; Mitchell & Lee, 2001; Society for Human Resource Management, 2014). In addition to the costs that plague an already budget-strapped system, turnover may preclude Extension from achieving its mission due to the loss of local programming where vacancies exist (Kutilek, 2000). Turnover often emerges from improperly managed job characteristics, such as poor relationships between peers and managers, lack of opportunity for growth and development, and a lack of challenging and meaningful work (Emberland & Rundmo, 2010; Society for Human Resource Management, 2014; Wright & Bonett, 2007). Failure to address workplace challenges can lead to burnout and other serious outcomes up to and including turnover (Huang, Lawler, & Lei, 2007; Paine, 1984). As a pervasive issue and concern within Extension, there is a need to better understand predictors of as well as burnout related outcomes and to empirically examine the effects of burnout among educators.

**Job Characteristics**

Exploring burnout begins by examining job characteristics. Job characteristics are the physical, psychological, social, or organizational aspects of a job, classified as job demands and job resources (Bakker & Demerouti, 2007). Job demands are associated with certain physiological and/or psychological costs, such as exhaustion and burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Van den Broeck, Van Ruysseveldt, Smulders, & De Witte, 2011). Examples of job demands include high work pressure, an unfavorable physical environment, time pressure, recipient contact, as well as irregular working hours and shift work (Demerouti et al., 2001),
workload and time pressure (Lee & Ashforth, 1996), and levels of overcommitment (Inocente, 2005). As suggested by Maslach (1998), chronic job demands are potentially serious; these demands lead to burnout by depleting oneself of mental and physical energy.

Job demands require sustained physical and/or psychological effort, whereas, job resources, help manage job demands and are particularly related to motivation and work engagement (Demerouti et al., 2001). Job resources encourage work goal achievement, reduce job demands, and stimulate personal growth, learning, and development (Bakker & Demerouti, 2007). Job resources include autonomy, performance feedback, wages, career opportunities, job security, coworker and supervisor support, team climate, role clarity, participation in decision making, skill variety, feedback, rewards, job control, task significance, and identity (Bakker & Demerouti, 2007). Characterized by a motivational process, these resources can actively encourage health-supporting activities and engagement (Hakanen, Schaufeli, & Ahola, 2008). The primary assumptions are “job demands and job resources are evident in any job and are related to burnout and work engagement” (Bakker & Demerouti, 2007, p. 312).

While not explicitly stated within the Extension literature, several job demands and job resources have been identified. This research has uncovered various predictors of burnout including high work pressure and emotionally demanding interactions with clients, peers, and administration (Ensle, 2005), as well as working nights and weekends, meeting tight deadlines, managing multiple reporting structures, and navigating a generally busy work culture (Peters et al., 2008). Specifically, Bradley et al. (2012) suggested physical exhaustion from driving and traveling may lead to burnout. Other identified job characteristics, which can be classified as job resources, include flexibility, autonomy, rewarding projects, meaningful work, and community outreach (Arnold & Place, 2010; Bradley et al., 2012; Ensle, 2005). Harder, Gouldthorpe, and Goodwin (2014) suggest Extension educators enjoy the opportunity to make a difference in people’s lives while having variety in daily activities. Depending upon the extent to which these job characteristics are realized, burnout can lead to increased stress, reduced job satisfaction, and increased turnover (Ezell, 2003; Fetsch & Kennington, 1997; Gutter & Stephenson, 2016; Harder et al., 2014; Martin & Kaufman, 2013; Mowbray, 2002; Safrit & Owen, 2010; Stark, Vettern, Gebeke, Lardy & Eighmy, 2012; Strong & Harder, 2009). While limited research exists, job characteristics identified in the Extension literature, explicitly or tangentially related to burnout, are included in Table 1. An examination of predictors and outcomes of burnout can help Extension push past the presenting problem and realize a deeper level of knowledge.
Table 1. Job Characteristics as Predictors and Outcomes of Burnout within Extension

<table>
<thead>
<tr>
<th>Job Characteristic</th>
<th>Predictor or Outcome</th>
<th>Author, Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of work (discipline) and personal characteristics (age and marital status)</td>
<td>Predictor</td>
<td>Igodan &amp; Newcomb, 1986</td>
</tr>
<tr>
<td>Lack of direction, job pressures, personal work management issues, mandated work</td>
<td>Predictor</td>
<td>Arnold &amp; Place, 2010</td>
</tr>
<tr>
<td>requirements, career overload</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems, work unit climate, individual needs and values, external environment</td>
<td>Predictor</td>
<td>Harder, Gouldthorpe, &amp; Goodwin, 2015</td>
</tr>
<tr>
<td>Over-commitment, continuous multi-tasking, working late</td>
<td>Predictor</td>
<td>Place, Jacob, Summerhill, &amp; Arrington,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>Working within multiple systems, reporting structure, paperwork/administrative</td>
<td>Predictor</td>
<td>Ensle, 2005</td>
</tr>
<tr>
<td>management, heavy workload</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late night meetings and demanding job responsibilities</td>
<td>Predictor</td>
<td>Rousan &amp; Henderson, 1996</td>
</tr>
<tr>
<td>Irregular hours, intense job assignments</td>
<td>Predictor</td>
<td>Kutilek, Conklin, &amp; Gunderson, 2002</td>
</tr>
<tr>
<td>Committee meetings, multi-county settings, stress</td>
<td>Predictor</td>
<td>Bartholomew &amp; Smith, 1990</td>
</tr>
<tr>
<td>Travel demands and long work hours</td>
<td>Predictor</td>
<td>Peters, Zvonkovic, &amp; Bowman, 2008</td>
</tr>
<tr>
<td>Employee stress and job satisfaction</td>
<td>Outcome</td>
<td>Fetsch &amp; Kennington, 1997; Stark, Vetter,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gebeke, Lardy &amp; Eighmy, 2012</td>
</tr>
<tr>
<td>Stress and turnover</td>
<td>Outcome</td>
<td>Ezell, 2003; Mowbray, 2002; Strong &amp;</td>
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<tr>
<td></td>
<td></td>
<td>Harder, 2009</td>
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<tr>
<td>Retention</td>
<td>Outcome</td>
<td>Gutter &amp; Stephenson, 2016; Harder,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gouldthorpe, &amp; Goodwin, 2014; Martin &amp;</td>
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<tr>
<td></td>
<td></td>
<td>Kaufman, 2013; Safrit &amp; Owen, 2010</td>
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</table>

Theoretical Framework

As a prevalent issue that requires deeper understanding, several theories from the work motivation, job design, and job stress literature have been used to understand and explore burnout, including the job characteristics theory (Hackman & Oldham, 1980), two-factor theory (Herzberg, 1966), and job demands-resources theory (Bakker & Demerouti, 2007). Of these, the job demands-resources (JD-R) theory offers a more comprehensive approach towards
understanding the predictors and consequences of burnout by incorporating principles from the work motivation, job design, and job stress literatures.

Hackman and Oldham (1980) developed the job characteristics theory as a means to understand how job characteristics and job design affect job outcomes. They suggested five characteristics that represent job outcomes and described psychological states: skill variety, task variety, task significance, autonomy, and feedback. The theory purports direct correlations between characteristics and psychological states such as experienced meaningfulness, experienced responsibility for outcomes, and knowledge of actual results. Skill variety, task variety, and task significance are direct correlates of experienced meaningfulness. Autonomy is directly correlated with experienced responsibility for outcomes. Finally, feedback is directly and positively correlated to knowledge of actual results. While this theory posits that autonomy and feedback have multiplicative power, there is a circular argument suggesting that job outcomes influence job design and job design influences job outcomes.

The two-factor theory addresses motivation, or the willingness to exert high levels of effort toward organizational goals, conditioned by the efforts and ability to satisfy individual needs (Herzberg, 1966). The two-factor theory focuses on hygiene, or extrinsic, factors and motivation, or intrinsic, factors. Herzberg asserted that intrinsic factors are related to satisfaction and affect the quality of work, while extrinsic factors are related to dissatisfaction and affect an individual’s willingness to work. A full supply of hygiene factors, such as supervision, company policies, working conditions, and salary, will not necessarily result in job satisfaction. Effectively addressing motivation factors, such as achievement, recognition, meaningful work, responsibility, and opportunities for advancement and growth, can improve employee productivity and performance. Herzberg theorized that both intrinsic and extrinsic factors should be addressed to improve satisfaction (Wan Fauziah & Tan, 2013). This theory has been utilized within the Extension context to evaluate maintenance and motivation factors that influence job satisfaction (Strong & Harder, 2009). The job satisfaction of Extension educators is important but may not be enough to ensure the continued success of Cooperative Extension.

Although similarities exist between these models and theories, several researchers (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Taris, 2014) have used JD-R theory to more comprehensively examine the link between employee well-being and performance in various occupations and organizations. JD-R theory serves as an employee health and well-being theory comprised of principles from the work motivation, job design, and job stress literatures and has been used to understand and explain job burnout (Bakker, Demerouti, & Schaufeli, 2005; Demerouti et al., 2001). Job characteristics, characterized as emotional, cognitive, or physical, constitute an overarching model that may be applied to various occupational settings, irrespective of the particular demands and resources involved. Bakker and Demerouti (2007) purport the primary assumptions are that job characteristics, classified as job demands and job resources, are evident in any job and are related to burnout and work.
engagement. JD-R theory posits that employee well-being is derived from two relatively independent processes: the health impairment process and the motivational process (Bakker & Demerouti, 2007). The health impairment process may lead to burnout and subsequent health problems. This process is evident when poorly designed jobs and chronic job demands exhaust employees’ mental and physical resources. Alternatively, the motivational process of job resources leads to a positive affective state, which fosters positive organizational outcomes, such as good quality performance, low sickness absence, and organizational commitment.

Through this theory, burnout is established as an outcome of employee well-being, and job characteristics are evaluated collectively and independently. Accordingly, job resources and job demands are related to both burnout and engagement. Hu, Schaufeli, and Taris (2011) and Schaufeli and Taris (2014) found a positive correlation between job resources and engagement as well as a negative correlation with job demands and burnout. Bakker, Demerouti, and Sanz-Vergel (2014) suggested that job resources have the capacity to reduce the costs of job demands, and therefore, both job demands and job resources have an interactive effect. Bakker, Van Veldhoven, and Xanthopoulou (2010) suggested specific demands (i.e., challenges requiring complex skills and having a high workload) must exist in order for job resources to be meaningful. Although job demands are not necessarily negative, negative outcomes may occur when employees feel overburdened (Meijman & Mulder, 1998). These job characteristics have the individual and collective power to influence the health impairment process and the motivational process; both of which are integral to major organizational outcomes, and subsequently, organizational success. Given the unique characteristics within Extension, JD-R expands the lens of the two-factor theory by examining motivation and health impairment processes. While the two-factor theory examines intrinsic and extrinsic factors, it is important to consider the ever-changing external environment as well. JD-R also provides a more comprehensive approach to examine the interactive effects between and among these job characteristics and the extent to which burnout is influenced. Practically, JD-R theory is useful for diagnosing contributing factors of burnout and evaluating multiple consequences.

Implications and Conclusion

For more than a century, Extension has pursued its mission of providing knowledge, resources, and tools to help individuals, families, and communities make informed decisions. Extension educators have and continue to be essential to the pursuit of this mission and the quality of education provided to clients across the United States. As such, understanding the prevalence and impact of burnout among Extension educators is essential to the continued success and integrity of the Extension system. While the issue of burnout among Extension educators has been raised in the literature for at least three decades (Ensle, 2005; Igodan & Newcomb, 1986; Place et al., 2000), nationally aggregated data for Extension do not exist. Within the Extension literature, burnout has been described as physical exhaustion (Bradley et al., 2012), high work pressure, and feelings of emotional demands (Ensle, 2005). Research suggests burnout
significantly and negatively affects employees and organizations, up to and including employee intentions to leave Extension (Kutilek, 2000). The predictors of burnout have been identified as excessive driving and traveling, geographic isolation, fewer resources, reduced access to technology (Bradley et al., 2012), night and weekend work, tight deadlines, multiple reporting structures, and a generally busy work culture (Peters et al., 2008). Some of these predictors can be classified as job characteristics, which contribute to both burnout and engagement (Bakker & Demerouti, 2007). Consequences of burnout include employee stress, low job satisfaction (Fetsch & Kennington, 1997; Stark et al., 2012), and turnover (Ezell, 2003; Gutter & Stephenson, 2016; Harder et al., 2014; Martin & Kaufman, 2013; Mowbray, 2002; Safrit & Owen, 2010; Strong & Harder, 2009).

Our review of the existing Extension literature surrounding burnout demonstrates the need for a current and more comprehensive empirical examination of burnout and engagement, the need for more supportive workplaces, and offers a theoretical lens in which to examine burnout and related variables. As Extension pursues its mission into the next century, better understanding the relationship between the predictors and consequences of burnout and engagement can help administrators and states design more supportive environments for professionals. Supportive work environments, which offer a deliberate balance of job demands and job resources to maximize motivation and encourage goal achievement, may include an awareness of geographic responsibilities and program planning time as well as prioritization of employee self-care. From this lens, leadership can create an environment that stimulates growth and development and helps to alleviate burnout. For example, vast geographic responsibilities may require traveling long distances and may foster work pressure by reducing available time for teaching and outreach and administrative office time. While leadership may not be able to reduce geographic responsibilities, this may be an area where additional administrative support or other types of support would be helpful. Other resources that support flexibility, autonomy, creativity, and innovation should also be considered. These types of resources and support can help educators when developing community-centered programming.

The literature suggests JD-R theory is useful for diagnosing contributing factors of burnout and evaluating multiple consequences simultaneously as it combines the work motivation, job design, and job stress literatures to understand and explain job burnout (Bakker et al., 2005; Demerouti et al., 2001; Russell, Liggans, & Attoh, 2018). As such, JD-R is an ideal theoretical framework to explore how, and to what extent, job characteristics work, collectively and independently, and are related to burnout within Extension. Bakker et al. (2014) suggested that job resources have the capacity to reduce the costs of job demands, and therefore, both job demands and resources have an interactive effect. Bakker et al. (2010) suggested specific demands (i.e., challenges requiring complex skills and having a high workload) must exist in order for job resources to be meaningful. The Extension literature has favorably cited job resources including flexibility, autonomy, rewarding projects, meaningful work, and community outreach (Arnold & Place, 2010; Bradley et al., 2012; Ensle, 2005; Harder et al., 2014);
therefore, research undergirded by JD-R theory may lead to a better understanding of how job resources influence the work environment, burnout, and engagement among Extension educators.

Drawing from JD-R theory, future research should consider an examination of job characteristics that foster engagement – the antithesis of burnout and outcome of the motivational process identified in the theory. Future research should also include an empirical examination of the mediating effects of burnout on the relationship between job characteristics and turnover intention within Extension. Given the lack of discipline-specific research, an examination of job characteristics and their influence on turnover and engagement, across all disciplines, is warranted. An examination of the specific job demands and job resources experienced in Extension and by discipline is needed to identify organizational factors associated with both burnout and engagement. Findings from this suggested research could be used to develop an Extension-specific instrument to assess job characteristics. Additionally, this research may contribute to the formation of strategies to reduce burnout within Extension as well as increasing engagement and retention. Due to the very nature of Extension, better understanding predictors and consequences of burnout and engagement are necessary to reach organizational goals (Abbasi & Hollman, 2000; Harter & Blacksmith, 2010). Without this understanding, it is possible to jeopardize the future of Extension.

This article provides a current context in which Extension educators and leadership can glean perspective. Administrators can consider the relevance of burnout in their respective state program areas, while educators can better understand and control for those factors that lead to burnout. Researchers have a basis for investigating the influence of job characteristics on engagement. Policy makers can use the results of JD-R theory-driven research to determine whether, and to what extent, additional policies or programs should be created. Overall, addressing the work environment of Extension educators is integral to improving employee-related outcomes within the Cooperative Extension System.

References


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Translating Policy, Systems, and Environmental Change for Use in the Family Context

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Theorists argue that emphasizing changes to the policies, systems, and environments in which individuals live has more economical and sustainable impact on human health than interventions targeted directly to individuals (Kegler et al., 2015). We believe, however, that the ecology of the family remains an essential context for influencing individual behavior and contend it crucial that family life educators acknowledge the impact of family-level health-improvement initiatives. As such, we propose a behavior-change model for the family context that reflects the impact of interconnected family rules (policy), family relationships (systems), and the home (environment) on individual behavior, and acknowledge the underlying philosophical values that influence decisions about development, well-being, and health (see Figure 1; Bates & Yelland, 2018). Although the four framework concepts are interrelated, each can be conceptualized and operationalized uniquely. Future research will delineate techniques for evaluating how changes to family rules, family relationships, and the home impact human health.

**Figure 1. Framework for Conceptualizing Behavior Change in the Family Context**
References


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The Journal of Human Sciences and Extension is a peer-reviewed, open-access, online journal focused on disseminating knowledge and information to academicians, educators, and practitioners. Topics addressed include human development (e.g., early care and education, youth development); family studies; agricultural education; leadership development; extension; health and wellness; apparel, textiles, and merchandising; agricultural economics; nutrition and dietetics; family resource management; and program planning and evaluation. The journal seeks to bridge research and practice, thus all manuscripts must give attention to practical implications of the work. The journal is sponsored by the School of Human Sciences at Mississippi State University.

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