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Resource Management: Environmental Sustainability Across the Financial Literacy Curriculum

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Despite a call to action for policymakers to incorporate sustainability into the family and consumer sciences (FCS) education curriculum, it has been overlooked in financial education. Utilizing data from the Arizona Pathways to Life Success for University Students (APLUS) Project[1], this article explores the plausibility of including environmental sustainability principles in the financial education curriculum as an additional pedagogical method for FCS educators to use when teaching financial literacy. General linear regression results suggest that participants with more pro-environmental attitudes and behaviors display a larger number of positive financial attitudes, behaviors, and intentions providing initial support for the implementation of sustainability into FCS financial literacy curriculum.

Huston (2010) defined financial literacy as the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial wellbeing and security. Financial education is intended to increase a person's human capital, specifically financial knowledge and/or application (i.e., financial literacy) (Huston, 2010). Therefore, the goal of financial education is to increase financial literacy and ultimately improve financial wellbeing (Huston, 2010).

Personal finance continues to grow in importance as a topic in family and consumer science (FCS) education. By 2017, personal finance was a requirement for high school graduation in 21 states (Stoddard & Urban, 2020). According to a recent report by the Council for Economic Education (2020), 45 states have added personal finance in the K-12 standards, and 37 states require the standards to be adopted and implemented by school districts. Given the importance, it is imperative that financial education is not handled with a one-size-fits-all approach. It should be tailored to suit different demographics, life stages, and learning strategies (Huston, 2010). Introducing sustainability principles into financial education may provide alternative pedagogical techniques for increasing financial literacy.

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Sustainability is broadly defined as the efficient use of resources to meet present needs without compromising the ability of future generations to meet their own needs (Brundtland, 1987). The Association for the Advancement of Sustainability in Higher Education (AASHE) in December 2005 (AASHE, n.d.) officially launched *Sustainability across the Curriculum*. Since then, nearly 80 % of U.S. colleges and universities have adopted sustainability programs on campus (Velazquez et al., 2006), ranging from research intensive universities such as the University of Pennsylvania (Dmochowski et al., 2016) to liberal arts institutions such as Morehouse College (Muldrow et al., 2019). The interdisciplinary and multidisciplinary nature of sustainability has allowed its concepts to be implemented across various curriculums such as architecture (Iulo et al., 2013; Olweny, 2018), the arts (Bertaux & Skeirik, 2018), chemistry (Kanapathy et al., 2019), dance (Waldman, 2013), economics (Green, 2015; Venkatesan, 2015), engineering (Gallego-Schmid et al., 2018; Shields et al., 2013; Tang, 2018; Thürer et al., 2018), hospitality and tourism (Deale & Barber, 2012), modern languages (Hubscher-Davidson & Panichelli-Batalla, 2016), and sport management (Mercado & Grady, 2017).

Stall-Meadows (2010) urged FCS policymakers to weave sustainability into the FCS education curriculum. Since this suggestion was made, sustainability has been infused into FCS areas such as foods and nutrition (Maher & Burkhart, 2017), apparel and textiles (Hiller Connell & Kozar, 2012), and interior design (Afacan, 2014; Stark & Park, 2016). Although sustainability has received attention across these numerous disciplines and areas, it has been mostly overlooked in financial literacy, financial planning, and personal finance curricula and literature (we use "financial education" to include all three terms).

The purpose of this study is to explore the relationship between environmental sustainability and personal finance. Does a relationship exist between an individual's concern over environmental resources and their proclivity to manage financial resources? We posit that those attitudes about resource management apply broadly, covering both environmental resources and financial resources. We hypothesize that individuals displaying pro-environmental attitudes and behaviors will also display positive financial attitudes, behaviors, and intentions. Results of this study may encourage financial educators and researchers to weave environmental sustainability into financial education curriculums and financial literacy research.

Literature Review

Both environmental sustainability and personal finance are driven by a shift in time perspectives because at the root of both disciplines is the concept of intertemporal choices (Chieffe & Rakes, 1999). Intertemporal choices involve tradeoffs among costs and benefits occurring at different times, this concept is the essence of delayed gratification (Frederick et al., 2002). Three behavioral paradigms existing in the vein of intertemporal choices are future orientation, intertemporal and intergenerational transfers of resources, and hyperbolic discounting. These three paradigms focus on attitudinal, cognitive, and motivational constructs predicting individual behavior related to the ability to embrace environmental sustainability and personal finance (Steinberg et al., 2009).

Future Orientation

Future orientation is a trait combining elements of planning and delaying gratification that allows individuals to see the potential long-term consequences of their current behavior and decisions (Howlett et al., 2008; Strathman et al., 1994). The extent to which individuals consider the future consequences of their current behavior is a predictor of their likelihood to make sound

intertemporal choices, exercise self-control and sacrifice short-term pleasure for long-term wellbeing (Anong & Fisher, 2013; Howlett et al., 2008; Strathman et al., 1994; Thaler & Shefrin, 1981). In personal finance, budgeting is an example of future orientation. Budgeters are considered long-term planners who understand that their financial decisions today impact their consumption tomorrow (Davis & Carr, 1992; Godwin, 1990; Muske & Winter, 2001).

Bryant and Zick (2005) described future-oriented individuals as "patient" because they prefer to sacrifice some of their consumption today in order to have more tomorrow. An individual's ability to manage their finite financial resources is determined in part by their attitude towards intertemporal choice and budget constraints (Shelton & Hill, 1995). Similarly, future orientation has been linked to individuals engaging in pro-environmental behaviors (Howlett et al., 2008; Strathman et al., 1994; Zaval et al., 2015). These individuals understand that how environmental resources are managed today influences the future availability of these resources.

Intertemporal and Intergenerational Transfers of Resources

The intertemporal and intergenerational transfers of resources are prevalent in both environmental sustainability and personal finance. Through borrowing, individuals bring future resources into the present (Huston, 2010). In contrast, saving, investing, and bequeathing allows individuals to preserve resources for future use (Huston, 2010). Similarly, sustainability is both intertemporal and intragenerational. Individuals must allocate environmental resources to meet their current needs without depleting resources and compromising their future consumption and the needs of future generations (Brundtland, 1987; Shields et al., 2014). The problem arises through the tension caused between the desire to preserve resources for the future (through intertemporal and intergenerational transfers) with the human tendency to prefer having rewards in hand (e.g., hyperbolic discounting).

Hyperbolic Discounting

Hyperbolic discounting refers to the tendency of individuals to choose smaller rewards that pay off sooner rather than larger rewards that pay off in a longer period of time. The amount a future reward is discounted depends on the length of the delay, when the delay occurs, and changing preferences (Laibson, 1997). Young adults may constrain their futures by discounting the importance and benefit of saving and investing for retirement because of the sacrifice in current lifestyle often required to save and invest (Muske & Winter, 2001). Likewise, hyperbolic discounting has a direct effect on environmentally responsible behavior because an individual's personal habits can counteract intention and behavior (Swaim et al., 2016).

Method

Data came from the Arizona Pathways to Life Success for University Students (APLUS) project. In 2013, the APLUS longitudinal panel study released Wave 3 survey data containing responses from 1,010 participants (Shim & Serido, 2007-2018). Data were collected via online survey at a large, public university in the southwestern region of the United States. In Wave 3, most of these young adults have entered their post-graduation life stage.

The dependent variables were four scales created by the data collectors: student financial attitude scale, student financial intention scale, student budgeting behavior scale, and student financial planning scale. Each of the four scales had a reliability score above the α=0.70 acceptable threshold.

The *student financial attitude scale* (mean=3.891; median=4.00; α=0.817) was computed as the mean of six items on a five-point scale from 1 (very unfavorable) to 5 (very favorable). Participants were asked to indicate how favorably or unfavorably they feel toward each of the following activities: tracking monthly expenses, spending within the budget, paying off credit cards in full, saving monthly for the future, investing for long term financial goals, and learning about financial management. Higher scores indicated positive attitudes toward financial behaviors.

The *student financial intention scale* (mean=3.81; median=3.83; α=0.77) was computed as the mean of six items on a five-point scale from 1 (very unlikely) to 5 (very likely). Participants were asked to indicate how likely or unlikely they are to engage in the following activities within the next 12 months: tracking monthly expenses, spending within the budget, paying off credit cards in full, saving monthly for the future, investing for long term finance goals, and learning about financial management. Higher scores indicated increased intention to use positive financial behaviors. The financial attitude and intention scales signaled the importance students place on personal financial management.

The *student budgeting behavior scale* (mean=3.55; median=3.67; α =0.775) was computed as the mean of three items on a five-point scale from 1 (never) to 5 (very often). Participants were asked to indicate how often they have engaged in the following activities within the past six months: budgeting regularly, tracking monthly expenses, and spending within the budget. Higher scores indicated more positive budgeting behaviors.

The *student financial planning scale* (mean=4.28; median=4.33; α =0.897) was computed as the mean of three items on a six-point scale from 1 (strongly disagree) to 6 (strongly agree). Participants were asked to express the extent to which they agree with the following statements: I consult my budget to see how much money I have left for the next 1-2 months, I like to look to my budget for the next 1-2 months in order to get a better view of my spending in the future, and it makes me feel better to have my finances planned out in the next 1-2 months. Higher scores indicated an increased likelihood to do financial planning for a one-to-two month time horizon.

The independent variables were categorized as either: 1) environmental sustainability variables of interest, or 2) demographic and socioeconomic covariates. There were 22 environmental sustainability variables of interest; 19 questions titled *About My Environmental Self* were coded on a seven-point scale 1 (strongly disagree) to 7 (strongly agree) and three questions regarding the future effects of climate change coded on a five-point scale: 1 (none at all) and 5 (a whole lot). Demographic and socioeconomic covariates related to financial outcomes were included as control variables (i.e., age, ethnicity, college GPA, first-generation college, father's education, mother's education, and parents' annual gross income).

Given the large number of environmental variables, Principal Component Analysis (PCA) was employed to reduce the 22 environmental variables into two principal components (i.e. index variables) while preserving as much information as possible from the original data. The two principal components, Environmental 1 and Environmental 2, revealed the internal structure of the original 22 environmental variables in a way that best explained the variance and information in the data. The principal components were new variables, constructed as uncorrelated, linear combinations of the initial variables.

PCA places the maximum possible information in the first few principal components. Therefore Environmental 1 and Environmental 2 captured a majority of the original variance and information from the initial data, with Environmental 1 containing and explaining the largest proportion of the variance and information from the original variables. The environmental

Table 1

APLUS Environmental Variables Included in the Creation of the Principal Component Analysis Index Variables and Corresponding Weighted Average of Each Variable

	Environmental 1	Environmental 2
Indicate the extent to which you agree or disagree with the following statements:		
I buy environmentally friendly products as much as possible.	-0.2688	0.0025
When available, I buy organic food instead of conventionally produced food.	-0.2203	-0.0059
I attempt to reduce the waste I cause when buying and consuming products.	-0.2844	-0.0541
I use products made from recycled material whenever possible.	-0.2835	-0.0119
I recycle beverage containers and plastic items whenever possible.	-0.2142	-0.0222
I try to conserve paper or go paperless whenever possible.	-0.2504	0.0034
I try to cut down on eating meat.	-0.2033	0.0247
I turn off lights and electronics when not in use.	-0.1781	-0.0349
I avoid buying products that I don't really need.	-0.1634	-0.1472
I use reusable shopping bags.	-0.2097	-0.0308
I try to conserve electricity or use renewable energy whenever possible.	-0.2347	-0.0220
I try to use a bike or public transport rather than a car whenever possible.	-0.1848	-0.1060
I consider myself to be environmentally responsible.	-0.2848	-0.1008
I repair things that are broken rather than buy new ones whenever possible.	-0.2042	-0.2051
I avoid using disposable products.	-0.2326	-0.0900
When available, I buy locally grown produce.	-0.2506	-0.0801
I avoid impulse purchases.	-0.1315	-0.1756
I buy used furniture and household items on Craigslist or	-0.1386	-0.1751

at garage sales.		
I buy second-hand clothing at vintage or thrift stores.	-0.1366	-0.1366
Please carefully read the following statements regarding the future effects of climate change and select an appropriate response for each:		
How much harm will climate change cause for Americans in 50 years?	-0.1633	0.5229
How much suffering will climate change cause for Americans in 50 years?	-0.1664	0.5147
How much damage will climate change cause for Americans in 50 years?	-0.1646	0.5244

variables included in the PCA and the corresponding weight of each independent variable used to create the Environmental 1 and Environmental 2 index variables are presented in Table 1. It should be noted that, Environmental 1 and Environmental 2 represented the negative weighted average of all the environmental variables.

We tested our hypothesis with four models, one for each dependent variable. Each model contained Environmental 1 and Environmental 2 as the independent variables of interest as well as the demographic and socioeconomic covariates. For each of the four models, we first conducted an ANOVA to determine the overall significance of the independent variables of interest, Environmental 1 and Environmental 2. Since there were both categorical and numerical predictors in the models, we then used general linear regressions (GLM) to make detailed interpretations of whether significant differences existed between the four financial outcome variables (dependent variables), the two independent variables of interest and the covariates. Statistical significance for all analyses was set at $p < 0.05$, and all analyses were conducted in SAS software version 9.4. Given that Environmental 1 and Environmental 2 were the negative weighted average of all environmental variables, any negative regression coefficients were interpreted as a positive relationship with the financial outcome variable. After removing 221 participants with missing responses, the data size used in the regression was N = 789.

Results

A descriptive summary of the demographic and socioeconomic variables is presented in Table 2. The aim of this exploratory study was to provide evidence that a significant relationship exists between environmental sustainability and personal finance; therefore, only the multivariate results of the sustainability variables are discussed. All multivariate results have been presented in Table 3 and Table 4.

An exploration of the link between environmental sustainability and personal finance revealed that statistically significant relationships exist between the independent environmental principal components and each of the four dependent financial outcomes. As participants' Environmental 1 average increases, they were significantly more likely to have higher averages in all four financial outcomes: student financial attitudes (β=-0.3478, SE=0.0907, $p<0.001$), student financial intention (β=-0.3778, SE=0.0887, $p<0.001$), student budgeting behavior (β=-

Table 2

Descriptive Summary of Students

	N = 1,010
Race	
Asian/Asian American	9%
Black/Native American	8%
Hispanic/Latino	15%
White	68%
Age	
Mean (Range)	24.41 years (22,46)
Gender	
Female	62%
Male	38%
GPA	
Mean (Range)	4.04 (1,5)
Father's education	
Less than HS diploma	5%
HS diploma	16%
Some college	19%
Bachelor's degree	32%
Graduate degree	28%
Mother's education	
Less than HS diploma	21%
HS diploma	22%
Some college	57%
Parent's income	
Less than $50,000	19%
$50,000-$99,999	31%
$100,000-$200,000	33%
Over $200,000	17%

Table 3
General Linear Model Regression Results

	Financial Attitudes				Financial Intentions			
	Coef.	SE	t-value	p-value	Coef.	SE	t-value	p-value
Environmental 1	-0.3478***	0.0907	-3.8335	0.0001	-0.3778***	0.0887	-4.2564	0.0000
Environmental 2	-0.2297	0.1595	-1.4401	0.1503	-0.1331	0.1560	-0.8530	0.3939
Race (Asian)								
Black/Native American	-1.2680	1.1393	-1.1129	0.2661	0.7962	1.1145	0.7144	0.4752
Hispanic/Latino	0.0144	0.9960	0.0144	0.9885	0.8370	0.9743	0.8592	0.3905
White	0.3819	0.8182	0.4668	0.6408	0.3068	0.8003	0.3833	0.7016
Age	0.2178	0.2168	1.0047	0.3154	-0.1294	0.2121	-0.6100	0.5420
GPA (0.00-0.99)								
1.00-1.99	0.6955	1.5669	0.4439	0.6573	0.4815	1.5328	0.3141	0.7535
2.00-2.99	1.1121	1.4338	0.7756	0.4382	0.2410	1.4026	0.1718	0.8636
3.00-4.00	1.4848	1.3572	1.0941	0.2743	0.0758	1.3276	0.0571	0.9545
Over 4.00	2.6941*	1.3341	2.0194	0.0438	0.3255	1.3050	0.2494	0.8031
First generation college	-0.0741	0.8729	-0.0849	0.9324	0.7259	0.8539	0.8501	0.3955
Father's education (<HS)								
HS diploma	4.5609**	1.5455	2.9510	0.0033	-0.0771	1.5118	-0.0510	0.9593
Some college	4.7603**	1.5679	3.0360	0.0025	0.9933	1.5338	0.6476	0.5174
Bachelor's degree	3.8110*	1.5726	2.4233	0.0156	0.9235	1.5384	0.6003	0.5485
Graduate degree	4.9683**	1.6129	3.0804	0.0021	0.8233	1.5777	0.5218	0.6019
Mother's education (<HS)								
HS diploma	-0.9448	1.7697	-0.5339	0.5936	0.2475	1.7311	0.1430	0.8863
Some college	0.2850	1.7962	0.1587	0.8740	0.2535	1.7570	0.1443	0.8853
Bachelor's degree	-0.4284	1.8095	-0.2368	0.8129	0.6084	1.7701	0.3437	0.7312
Graduate degree	0.0323	1.8675	0.0173	0.9862	0.0335	1.8268	0.0183	0.9854
Parent's income (<$50,000)								
$50,000-$99,999	-0.1744	0.7648	-0.2280	0.8197	0.6165	0.7482	0.8240	0.4102
$100,000-$200,000	1.1283	0.8103	1.3924	0.1642	1.8526*	0.7927	2.3371	0.0197
Over $200,000	0.0417	0.9576	0.0436	0.9652	1.3173	0.9367	1.4063	0.1601

Source: APLUS.
Significance: * p<0.05, ** p<0.01, *** p<0.001

Table 4
General Linear Model Regression Results

	Financial Planning				Budgeting			
	Coef.	SE	t-value	p-value	Coef.	SE	t-value	p-value
Environmental 1	-0.2749***	0.0524	-5.2477	0.0000	-0.1939***	0.0533	-3.6397	0.0003
Environmental 2	-0.0549	0.0921	-0.5958	0.5515	-0.2928**	0.0937	-3.1261	0.0018
Race (Asian)								
Black/Native American	1.3057*	0.6578	1.985	0.0475	0.2983	0.6691	0.4458	0.6559
Hispanic/Latino	0.7984	0.5750	1.3884	0.1654	0.9136	0.5849	1.5621	0.1187
White	0.3404	0.4724	0.7206	0.4714	-0.0729	0.4805	-0.1518	0.8794
Age	-0.1906	0.1252	-1.5228	0.1282	0.0274	0.1273	0.2148	0.8300
GPA (0.00-0.99)								
1.00-1.99	1.3235	0.9046	1.4630	0.1439	0.2528	0.9202	0.2747	0.7836
2.00-2.99	1.4729	0.8278	1.7794	0.0756	0.2808	0.8420	0.3335	0.7389
3.00-4.00	1.3537	0.7835	1.7277	0.0845	0.7830	0.7970	0.9825	0.3262
Over 4.00	1.1112	0.7702	1.4427	0.1495	0.2149	0.7835	0.2743	0.7839
First generation college	1.0352*	0.5040	2.0541	0.0403	-0.0156	0.5126	-0.0304	0.9757
Father's education (<HS)								
HS diploma	0.2501	0.8923	0.2803	0.7793	0.2195	0.9076	0.2419	0.8089
Some college	0.0166	0.9052	0.0183	0.9854	0.1514	0.9208	0.1644	0.8694
Bachelor's degree	0.4343	0.9079	0.4784	0.6325	0.1231	0.9235	0.1333	0.8940
Graduate degree	-0.2164	0.9312	-0.2324	0.8163	0.0154	0.9472	0.0163	0.9870
Mother's education (<HS)								
HS diploma	-1.1875	1.0217	-1.1623	0.2455	-0.7086	1.0392	-0.6819	0.4955
Some college	-0.3666	1.0370	-0.3536	0.7238	-1.0881	1.0548	-1.0315	0.3026
Bachelor's degree	-0.9663	1.0447	-0.9250	0.3553	-0.9896	1.0626	-0.9312	0.3520
Graduate degree	-0.8655	1.0782	-0.8027	0.4224	-1.1416	1.0967	-1.0410	0.2982
Parent's income (<$50,000)								
$50,000-$99,999	0.5323	0.4416	1.2055	0.2284	0.1471	0.4491	0.3275	0.7434
$100,000-$200,000	0.2247	0.4678	0.4802	0.6312	0.2072	0.4759	0.4353	0.6634
Over $200,000	0.1511	0.5529	0.2733	0.7847	0.8348	0.5623	1.4845	0.1381

Source: APLUS.
Significance: * p<0.05, ** p<0.01, *** p<0.001

0.1939, SE=0.0533, p<0.001), and student financial planning (β=-0.2749, SE=0.0524, p<0.001). Participants with higher Environmental 2 averages were more likely to have higher averages in student budgeting behavior (β=-0.2928, SE=0.0937, p<0.01).

Taken together, the results met the objective and supported the hypothesis. Participants with more pro-environmental attitudes and behaviors were more likely to display a larger number of positive financial attitudes, behaviors, and intentions. This suggested that participants' attitudes and behaviors around managing resources carries over from the environment to their own personal finances. The results provided evidence that a willingness to manage environmental resources translates to various aspects of participants' financial lives, particularly budgeting, saving, investing, managing debt, and learning about personal finance. In other words, environmental sustainability is related to an intention to efficiently manage current financial resources in a manner which ultimately benefits future financial wellbeing.

Discussion and Conclusion

This exploratory study took a first look at linking students' attitudes and behaviors about environmental sustainability to their attitudes and behaviors in personal finance. The findings of this study are important for several reasons. First, Cortese and Seif Hattan (2010) and Elder (2008) made a call for higher education to encourage implementing sustainability in all aspects of students' courses. Stall-Meadows (2010) specifically encouraged FCS policymakers to weave sustainability into the FCS curriculum. However, personal finance and financial planning curricula and research have been mostly overlooked. The results of this study provide evidence that incorporating sustainability topics, concepts and principles into financial education could benefit FCS educators teaching financial education and students acquiring valuable financial knowledge and skills.

Secondly, FCS educators have another tool available to teach financial literacy and financial planning. Financial education is not a one-size-fits-all approach. Educators must have the knowledge and preparation to reach students of diverse backgrounds. Implementing sustainability in financial education could be a valuable way of connecting the importance of financial literacy to students who already understand the importance of conserving, protecting, and saving the environment. Adding the principles of sustainability to financial education pedagogy expands the arsenal FCS educators have at their disposal to help a wider group of students understand principles that govern financial management.

This study also highlights how financial educators, extension educators, higher education institutions and Certified Financial Planner (CFP) Board Registered Programs could benefit from increasing their focus on sustainability principles in personal financial education materials. Financial educators and extension educators can highlight the resource management connection between managing environmental resources and managing financial resources in promoting when preparing financial literacy programming. Heads of sustainability programs at colleges and universities should consider a course in financial resource management in sustainability certificate and degree programs. Directors of CFP Board Registered Programs, particularly graduate programs, may find a source of potential students in majors with a pro-environmental focus. Many CFP programs are housed in FCS departments in the United States. Tools that help students gain confidence in their financial knowledge will not only help them become financially literate adults but may open an additional career option in financial planning which bestows professionals with the responsibility of helping others manage resources (Sibbel, 2009).

Since both environmental sustainability and financial literacy are already represented in the FCS national standards, teaching environmental sustainability in a personal finance curriculum could occur in two ways (Allen-Gil et al., 2005; Gaard et al., 2017; Mercado & Grady, 2017; Rusinko, 2010). First, create an entire resource management course devoted to combining sustainability in personal finance (Hurney et al., 2016). Second, deliver topics across the curriculum which include object lessons infusing environmental sustainability into the content of each course taught in a financial literacy or personal financial planning program. When students are taught how the principles of sustainability are related to specific personal financial attitudes and behaviors it increases the odds that they will be better prepared to put them into practice in managing all resources of their households. It is also important to note that faculty in both environmental sustainability and financial literacy programs can benefit their students by encouraging a shift towards a future orientation (Horstmanshof & Zimitat, 2007). A recent meta-analysis showed that teachers can aid in students developing an optimistic future orientation through modeling and encouraging real world applications to curriculum materials (Biglan & Barnes-Holmes, 2015).

The content standards and competencies in areas of study 2.0- Consumer and Family Resources and 3.0-Consumer Services of the National Standards for FCS Education provide the content knowledge, skills and outcomes that FCS educators could utilize to build courses and course sequences that weave together sustainability and personal finance education (Lead FCS, 2018). Sustainability concepts, topics and themes from competencies 2.2.1-2.2.3 (Analyze the relationship between the global environment and family and consumer resources) and 3.4.1-3.4.5 (Analyze resource consumption for conservation and waste management practices) can be utilized to teach personal finance concepts, topics and themes from competencies 2.6.1-2.7.6 (personal finance and demonstrate the ability to use knowledge and skills to manage one's financial resources effectively for a lifetime of financial security) and 3.3.1-3.3.8 (Analyze factors in guiding development of long-term financial management plans). Since both sustainability and personal finance involve the intertemporal management of resources, as the results suggest, increasing sustainability knowledge should affect personal finance attitudes, behaviors and intentions.

The national standards provide available content and outcomes to implement sustainability across financial education. FCS educators could also partner with sustainability experts and interested faculty at universities to bring together multiple areas of study and promote collaboration (Natkin & Kolbe, 2016). Sustainability across the financial literacy curriculum can continue to help evolve the inclusivity of financial education and fill a gap in Stall-Meadow's (2010) call to weave sustainability into FCS.

Overall, this exploratory study has promising results. Future research necessitates a pilot study combining the topics discussed in this article and testing the curriculum in a live teaching setting. Using other disciplines to teach personal finance has proven effective in the literature. In particular, mathematics education and financial education are commonly paired to link numeracy and financial literacy (Dituri et al., 2019; Ozkale & Erdogan, 2020). In the same manner, the results of this study suggest combining the resource management messages of intertemporal choice and future orientation prevalent in both sustainability and personal finance could produce similar success.

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