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Applying Online Educational Technology to Foster Financial Literacy: Financial-Institution Leaders' Insights

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Financial literacy deficiency is a prevailing problem in United States raising the need for effective financial education. Financial-institution leaders can play a crucial role in promoting financial literacy with their practical experience and expertise. This article sheds new light on the application of online technology to promote financial literacy by exploring the perceptions of financial-institution leaders. Supported by Dewey's pragmatic constructivist paradigm and the PEST conceptual framework, a qualitative inquiry research through in-depth telephone interviews with 20 leaders from banks and credit unions in Texas was conducted. The findings revealed some common ways to provide online financial literacy education, including website information posting, online financial calculators, external links, social media communication, and partnering with appropriate third parties. The financial leaders perceived that applying online technology would be an enlightening future direction especially for the millennial generation but face-to-face education would remain important. The opportunities included social responsibility fulfillment, corporate image strengthening, marketing, and favorable regulatory consideration. The challenges involved the human and financial resources constraints, IT support, lack of effective evaluation, and how to motivate online learning. Some leaders suggested the use of games, financial incentives, and innovative apps. The policy implications included increase in government support, partnership with schools, embracing financial literacy in the state test, and collaboration among financial leaders, regulators, educators, and policy makers to foster financial literacy for the benefits of the society. *Keywords: Financial Education, Financial Leadership, Financial Literacy, Online Technology, Qualitative Research*

Financial literacy is a lifelong skill essential for individuals to support their livings and to maintain national stability (Bernanke, 2012; OECD, 2017a). Americans, however, are facing the problem of financial literacy deficiency as revealed by the economic downturn during the Great Depression. The lack of financial capability of Americans to properly manage financial resources to repay mortgages, or incur debt beyond household saving, has led to the tragic incidents of heartbreaking foreclosures, personal bankruptcies, and other family social issues during the financial crisis (Houle & Light, 2014). It is paramount to strengthen financial literacy education to prevent similar occurrence. Unfortunately, financial education provided by the state public schools has not received adequate attention and the problem of low financial literacy remains. Financial institution leaders can play a critical role in fostering financial literacy given their financial expertise and close contact with consumers in making financial decisions (OECD, 2005; Vitt, 2013). Likewise, as our world marches into the digital era in the 21st century, how online technology can be applied to foster financial literacy education is an area well-worth exploring (OECD, 2017b). The focus of existing research on financial literacy is mostly quantitative through on-ground education using students or household adults as research subjects without viewing the issue from the perspective of the financial institution leaders. This study can add value and shed new light on the application of online technology to foster financial literacy by exploring the perceptions of financial institution leaders through a qualitative approach.

Through a qualitative exploratory inquiry using telephone interviews supplemented by web-site content analysis, this study integrates the three important aspects, namely, financial literacy education, financial-institution leadership, and the application of technology through answering the following research question. What are the perceptions of financial-institution leaders on applying online educational technology to foster financial literacy?

Background of the Problem

Americans are facing the problem of financial literacy deficiency (Bumcrot, Lin, & Lusardi, 2013; Lusardi & Mitchell, 2014). Financial literacy is defined as “the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being” (President’s Advisory Council on Financial Literacy, 2009, p. 4). Findings from a nationwide survey conducted by Jump$tart Coalition for Personal Financial Literacy (2008) revealed that American students achieved very low financial literacy scores. The result from the FINRA Investor Education Foundation (2016) continued to show that Americans’ financial literacy level remained low. The number of foreclosures was high with the financial crisis (Houle & Light, 2014). Personal bankruptcy filings rose to 1.5 million in 2010, the highest since 2005 (Kehiaian & Williams, 2012). During the past decade from 2008 to 2018, household debt in the United States increased notably while saving rates stayed low. Household debt reached a high of $13.51 trillion at end-September 2018 (Federal Reserve Bank of New York, 2018). In contrast, the personal saving rate of Americans fell to a low of 2.4% in 2017 (Bureau of Economic Analysis, 2018).

Significance of the Problem Supported by Literature Review

The low level of financial literacy among Americans is not a recent development (Anthes, 2004). Anthes (2004) noted the low financial literacy problem more than a decade ago and called for financial leaders to promote financial literacy education. Despite government regulators, financial professionals, and consumer advocates agreed about the importance of financial literacy education (Pearson, 2008), a lack of agreement existed about how financial education could be delivered effectively to influence financial behavior (Schuchardt et al., 2009). With technological advances, financial education can be delivered not only face-to-face but also online (Hanson, 2011). Free online financial literacy resources are available from the various websites of government (Consumer Financial Protection Bureau, 2016; Rustomfram & Robinson, 2015), banks (Wells Fargo, 2018), and credit unions (Credit Union National Association, 2013). The purpose of this study was to explore the perceptions of financial-institution leaders on applying online technology to promote financial literacy to consumers.

Serious Problem of Low Levels of Financial Literacy in America

A review of the literature manifests clearly that many Americans face the problem of inadequate financial literacy. The surveys done by the Jump$tart Coalition for Personal Financial Literacy (2008) showed consistently that American high school students achieved very low financial literacy scores and did not have the correct financial concepts (Mandell, 2008). The survey by National Foundation for Credit Counseling (2012) revealed that 56% of consumers did not have any budget or track their spending while one third of Americans did not pay their bills on time. Forty-two percent of participants rated themselves with a grade of C, D, or F for their personal finance knowledge. Old adults aged over 50, including retiring and retired people, also lacked financial literacy (Lusardi & Mitchell, 2014; University of Michigan, 2017). Similarly, the survey done by the Financial Industry Regulatory Authority Investor Education Foundation (FINRA; FINRA, 2013) revealed that the levels of financial literacy of Americans remained low.

Moreover, since the 1980s, more companies have changed their retirement plans from defined benefit to defined contribution (Bumcrot et al., 2013; Gallery, Newton, & Palm, 2011). Under defined benefit plans, employers sponsor and make investment decisions for the employees. In contrast, under defined contribution plans, employees need to shoulder the responsibility of planning and investing their own retirement savings. Likewise, the financial market has undergone innovative changes resulting in increasingly complex financial decisions for consumers (CFPB, 2013). In addition, the problem of inadequate financial literacy is interdisciplinary (Fenge, 2012). Low financial literacy is a widespread problem across different age groups and disciplines (Lusardi & Mitchell, 2011, 2014).

Importance of Financial Education to Foster Financial Literacy

Financial literacy is not something inborn in people like eating or breathing (Borja, 2005). People need to learn through education, formally or informally. Otherwise, they have to learn it in a difficult way from miserable life experience (Maloney, 2010). Although government regulators, academics, and financial professionals agreed that financial education was important (Eades, Bannister, Hensley, Kieffer, & Staten, 2012; Pearson, 2008), research findings were mixed about the effectiveness of financial education and which delivery method to use (Braunstein & Welch, 2002; Schuchardt et al., 2009). Proponents for financial literacy education believed that education was necessary because informed financial decisions had to hinge upon people's financial knowledge (Hogarth, 2006; OECD, 2005). In contrast, Collins and O'Rourke (2010) concluded that the benefits of financial education were promising but not absolute. Willis (2011) also asserted that the educational effect on financial behavior was not as promising as changing the financial regulations to protect consumers. Despite the conflicting results, financial education remained important to enhance people's knowledge for making informed decisions (President's Advisory Council for Financial Capability, 2013).

Inadequate Financial Education in America

Existing financial literacy education is inadequate (Crain, 2013). Before 2008, education to promote financial literacy has not received much attention as evidenced by the absence of compulsory financial courses in public schools in many states (Harnisch, 2010). The financial crisis in 2008 revitalized much concerns to the importance of financial education (Hite, Slocombe, Railsback, & Miller, 2011). One positive development was the various national initiatives to promote public awareness of the importance of financial literacy (White House, 2012a). The survey results by the Council for Economic Education (2014, 2016, 2018), however, revealed that the growth in personal finance education was sluggish. Unlike the reading and writing skills testing, the personal finance education requirements relied more on the state schools' choices rather than mandated by the government.

Crucial Role of Financial Leaders to Foster Financial Literacy

Fostering financial literacy through the formal school education channel is important but not sufficient. Informal education constitutes about 80 to 90 percent of all learning processes in general with the Internet use in the 21st century (OECD-US Treasury, 2008, p. 147). Personal finance education is a life-long learning and informal learning outside the formal school system is important. Collaboration with community partners can help to magnify the positive influence. Financial-institution leaders, as the forefront stakeholders dealing with consumers' financial issues, are in a good position to educate consumers (Burhouse, Gambrell, & Harris, 2004). The collaboration with financial services providers can achieve a win-win gain (Finkel, 2010). One effective strategy to promote financial literacy is to provide educational resources at the "teachable moments" (National Financial Educators Council, 2016, p. 20) when consumers are in their decision making.

The OECD (2005) recommended a promotion of the role of financial-institution leaders in providing financial education to their clients as part of good corporate governance. Similarly, the White House has published four financial capability toolkits with suggestions for ways to foster financial literacy. As stated in each of the four financial capability toolkits for K-12 schools, higher education, workplace, and community (White House, 2012b, 2012c, 2012d, & 2012e), one recommendation by the President's Advisory Council for Financial Capability (PACFC) was to engage financial-institution leaders as external partners to leverage limited resources to promote financial education.

Application of Technology to Foster Financial Literacy

In the digital era, the delivery of financial education can make use of advanced technological tools (OECD, 2017b). One of the critical needs for education in the future would be to connect online technology to school teaching and students' learning as identified by the TeacherSolutions 2030 Team (Berry, 2011). The use of edutainment, that is, a combination of entertainment and education with the ultimate goal for promoting education, is an innovative technique for fostering financial literacy (OECD-US Treasury, 2008; Wessel, 2013). Way (2014) described an ecological model regarding financial literacy education intervention with the application of technology as an important supporting element. Using educational technology to develop effective financial literacy programs by financial leaders is an important trend worth exploring.

The above literature review brings forth two important aspects. First, financial-institution leaders can play a crucial role in fostering financial literacy. Second, advanced technology is an alternative means to deliver financial education (National Endowment for Financial Education, 2016). One of the research priorities suggested by the Financial Literacy and Education Commission (FLEC) is to identify effective delivery channels for financial education to youth and adults (FLEC, 2013). This study provides an integrated view to combine these two essential elements of application of online technology and the financial leaders' perspectives by exploring the financial leaders' perceptions about the application of online technology to promote financial literacy.

Existing Research Emphasized Quantitative Studies

Contemporary research about financial literacy consist mostly of quantitative studies (Everfi & Higher One, 2015; Knoll & Houts, 2012; Little, 2014; OECD, 2014, 2017a; Power, Hobbs, & Ober, 2011; Sherraden, Johnson, Guo, & Elliott, 2011). While it is important to understand the quantitative relationship, it is also crucial to provide a holistic view generating insights through in-depth qualitative research (Morse, 2006). In real world practice, financial decisions are not made purely on quantitative numbers (Bennis & O' Toole, 2005; Vitt, 2013).

How the Study Can Bridge Existing Literature Gap

First, the study provides valuable information by embracing the perspective from financial leaders who can play an important role to foster financial literacy in practice. Adult learning theory, embracing Dewey's pragmatic constructivism element (Dewey, 1938), recognizes that adults learn by developing meaning of their experience (Hira, 2012). The study can tap the financial leaders' expertise, generating precious insights from the experience of these financial professionals. Second, this study provides an in-depth look into the opportunities, challenges, and online delivery method of giving financial literacy education through a qualitative exploratory inquiry. Findings from the qualitative study can bridge the literature gap by viewing the financial literacy education issue from the new perspective of the financial-institution leaders in practice that is complementary to the quantitative studies already in the literature.

Conceptual Framework

The conceptual framework of the study combines the PEST (political, economic, social, and technological) analysis (Aguilar, 1967; Doherty, Steel, & Parrish, 2012) and Dewey's (1938) pragmatic constructivist learning concept. For the political factor, both Bush and Obama supported financial literacy promotion with the establishment of major national initiatives (Maloney, 2010). In 2017, Trump issued an Executive Order with the empowerment of Americans to make informed financial decisions to build wealth as one of the core principles for regulating the financial system (White House, 2017). The government, however, has been facing a huge fiscal deficit, amounting to $779 billion in September 2018 (Department of the Treasury, 2018). The shortage of funding was one of the reasons for incorporating financial education into social studies and mathematics courses instead of developing a separate course (Maloney, 2010). The application of technology to facilitate learning could ease the financial burden (Stone-MacDonald & Douglass, 2015). Since 2008, three presidential advisory committees have been working on the partnerships among government, non-profit organizations and financial institutions to promote financial literacy (Examining how technology, 2014).

For the economic factor, the collapse of the mortgage-backed securities market in America precipitated a global financial crisis in 2008 to 2009. The number of foreclosures rose sharply with a meltdown of the mortgage market (Volpe & Mumaw, 2010). The subsequent economic recession aroused policy makers and educators' renewed attention to the importance of improving financial literacy in the United States (Finkel, 2010). For the social factor, the aging population with the baby-boomer generation approaching retirement age in the coming decade led to imminent need for financial literacy education (Colby & Ortman, 2014; Vitt, 2013). Not only consumers need to have financial literacy, social workers need to attain financial literacy to help the financially distressed clients (Fenge, 2012; Kindle, 2010, 2013). Likewise, the trend of switching from defined benefit to defined contribution pension plans implies that employees need financial literacy to make good financial decisions (Gallery, Gallery, Brown, Furneaux, & Palm, 2011).

On the technology front, the Internet has reshaped the education landscape in the digital age (Bonk, 2009). The use of mobile devices and e-learning becomes a trend rather than an exception (Pace, 2013). Likewise, the use of social media tools can enhance learning via collaboration in community of practice (Richardson, 2010). Such learning via collaboration makes Dewey's (1938) social constructivism idea go digital (Wiske & Perkins, 2005).

Dewey's Pragmatic Constructivist Learning Paradigm

Within the above macro context, this study embraces the education philosophy of Dewey (1938). Dewey believed that meaningful education hinged upon experience sharing with social interaction and continuous dynamic growth. Education did not refer to life in school per se but life in community through social constructivism (Zou, 2010). Effective education consisted of learning from daily life, gaining new experience from the present problems, and stimulating new ideas to solve future problems (Dewey, 1938). Vitt (2013) reiterated the importance of fostering financial literacy through contribution by financial professionals with practical experience. Experience affected perception (Whitmarsh, 2008). Seeking the perceptions of the financial leaders could fill the existing gap of the lack of practical experience of educators in teaching financial literacy (Maloney, 2010). In sum, the above analysis supports the significance of the study. Figure 1 contains a schema of the conceptual framework underpinning the research study.

Figure 1. Schema of the Conceptual Framework Underpinning the Research

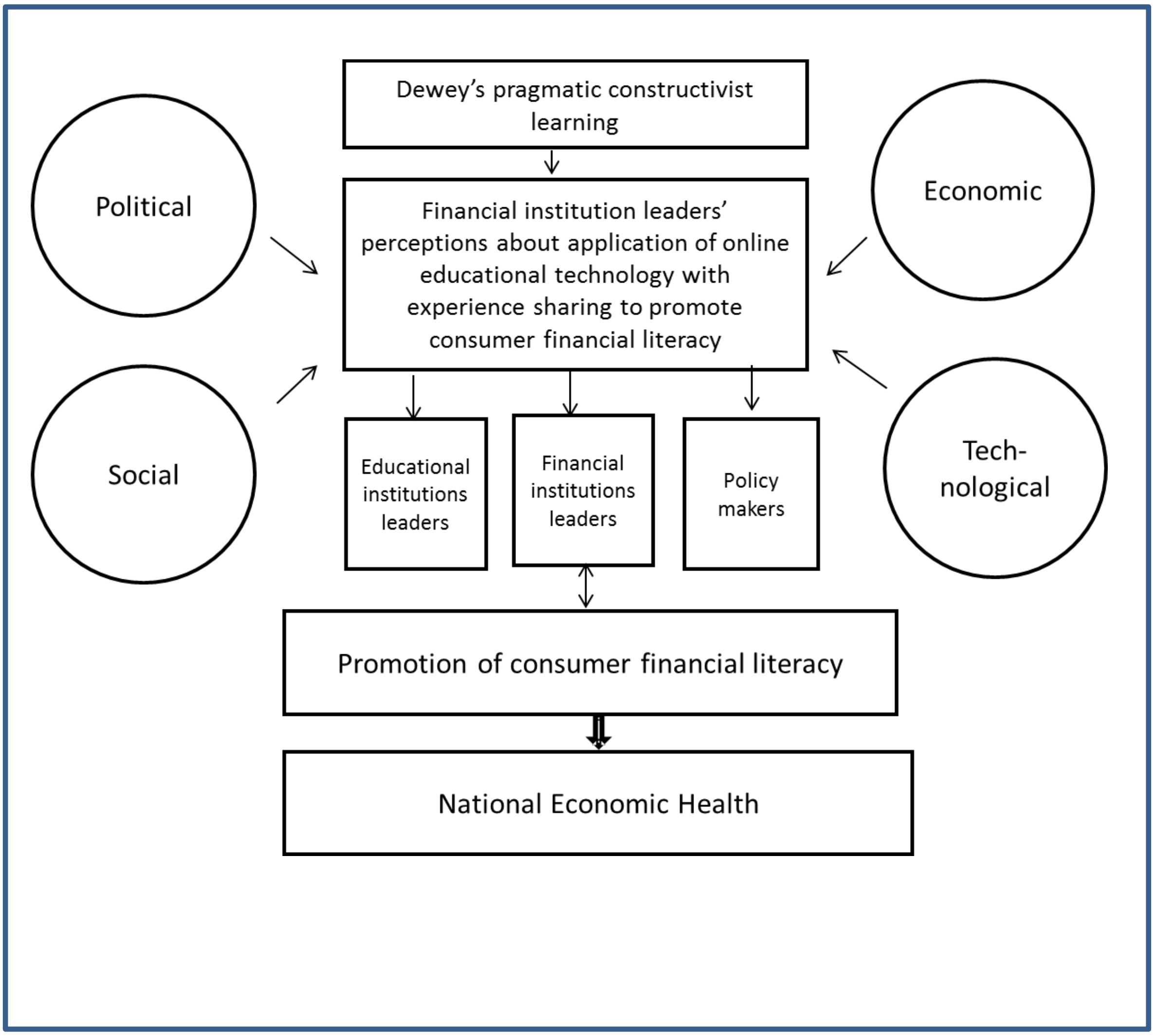

Figure 1. Schema of the Conceptual Framework. The figure contains a schema to support the research study and provides an outline about the important role of financial-institution leaders in promoting consumer financial literacy.

Self-of-the-Researcher

The author conducted this research as a partial fulfillment of completing the dissertation required to attain the degree of Doctor of Education in Educational Leadership with a specialization in educational technology from the University of Phoenix. The author selected the research topic because of her passion in both finance and education, as well as her professional background with careers in the banking, monetary authority, and educational fields. The intention was to make use of the research work to contribute to the society by arousing community awareness of the importance of fostering financial literacy. The information and insights collected from the research can serve to help people to be good stewards for their wealth and to enhance their financial capability through the application of online technology by sharing the financial professionals' valuable thoughts hinged upon the leaders' practical experiences.

Method and Design

This study followed the qualitative exploratory inquiry design (Gergen, Josselson, & Freeman, 2015). The aim was to gain the financial leaders' insights about what and how online technology could be applied to foster financial literacy from the perspective of financial-institution leaders, including the exploration of their perceived opportunities and challenges.

Setting, Population, and Sample

The population under study included the leaders of banks and credit unions in the United States. There were 5,472 commercial banks insured under the Federal Deposit Insurance Corporation (Federal Deposit Insurance Corporation, 2015) and 6,273 credit unions under the National Credit Union Administration (National Credit Union Administration, 2015). The sampling frame covered 250 state banks in Texas as retrieved from the Texas Department of Banking (http://www.dob.texas.gov/) and 475 credit unions in Texas as retrieved from the National Credit Union Administration (http://www.ncua.gov/) as of April 30, 2016.

The geographical location of the study was in Texas to confine the research scope. Texas was a good choice because it was one of the states that required high schools to offer personal finance course. It also required students to take personal finance education testing (Council for Economic Education, 2014, 2018). Among the 50 states and the District of Columbia, the financial literacy scores of Texas ranked below average at 33rd (Bumcrot et al., 2013). The below-average ranking made Texas a state worth studying. A deeper understanding about how financial leaders provided financial education through online delivery method would be useful to strengthen financial literacy proficiency in Texas.

The purposive sampling method was used. The purposive sampling using interviews was appropriate in qualitative research to collect data with an explicit purpose (Draper & Swift, 2011). Using the data collection method of interviewing, the researcher could obtain in-depth information about what the target participants thought, felt, or believed. As the purpose of the study was to explore the perceptions of the financial leaders on applying online technology to foster financial literacy, the participants selected had to be leaders with experience in providing financial literacy education. In this study, the target participants included the chief executive officers or representatives of the financial institutions, who took the leadership role and had experience in providing financial literacy education.

The sample comprised of 20 participants, nine leaders from banks and 11 from credit unions. Data saturation was reached after interviewing 16 participants as there was no concrete new theme or insights identified. There was, however, still some unique experience or useful information collected from the participants. The sample size was finalized at 20 after considering the factors such as the willingness of financial leaders to participate and the research time constraint. One critical point for qualitative researchers in deciding if the interviewing sample size was adequate was whether the collected information could address the research question with valuable insights and contribution to the field (Baker & Edwards, 2012). The information collected from the 20 leaders could add valuable insights and generate practical recommendations for consumers, policy makers, educators, and financial-institution leaders in banks and credit unions.

Sampling and Participant Recruitment

First, the researcher sought approval from the Texas Department of Banking and National Credit Union Administration to use their publicly available lists of banks and credit unions contact information obtained from their websites. Second, the researcher went through the list of banks and credit unions in Texas to identify the potential participants. Third, the researcher mailed cover letters with informed consent forms, interview guide, self-addressed returning envelopes, and the curriculum vitae of the researcher to the potential participants. The researcher also called the potential participants as a follow up. Financial-institution leaders who were willing to participate provided their e-mail contact addresses and direct phone numbers to set up a mutually agreeable time for the telephone interviews.

Informed Consent, Privacy and Confidentiality, Risks and Benefits

The study did not involve any vulnerable groups of human subjects (U.S. Department of Health and Human Services, 1979). Each participant signed an informed consent form before taking part in the study. The nature of the collected information from the financial leaders was expected not to incur harm to their privacy beyond that encountered in everyday life. To maintain confidentiality, the names of the participants were not disclosed. Each participant had a coding number to represent his or her name and identity. No foreseeable risk to the participants was identified. There is no direct monetary benefit to the participants, but a possible gain was the experience sharing with other financial leaders because the participants could receive a copy of the research collective findings in the form of an executive summary. The researcher had to obtain the Institutional Review Board’s approval from the University of Phoenix before data could be collected from the participants.

Data Collection

The primary data collection was through the semi-structured interview with open-ended questions (Appendix A). The researcher acted as the human instrument in conducting the interviews (Peredaryenko & Krauss, 2013). Based on the list of banks and credit unions, a review of the web-sites of the participating financial institutions was conducted to check for the available online financial education provided by the institutions. This web-site content analysis could also serve as a triangulation technique (Yin, 2014). The telephone interview questionnaire was reviewed by four experts, who were in the research consulting, financial literacy promotion, education, and financial technology field, to support the credibility and dependability (Houghton, Casey, Shaw, & Murphy, 2013) of the research (Colton & Covert, 2007). The expert-revised telephone questionnaire script was tested with a faculty in educational field to ensure a smooth operational running of the interview protocol before implementation.

The interviewing process took place from May to August in 2016. The interview content was recorded using a digital audio recording device. The interview questioning was more fluid-like with digression flexibility than rigidly bounded so that the interviewees could elaborate as much as they wished. The time duration of the interviews was expected to last from 45 minutes to 1 hour, but the participants could take as much time as they liked. The average interview time was 52 minutes. Member checking was a useful technique to increase qualitative research credibility (Lincoln & Guba, 1985) or data internal validity (Neuman, 2006), and to mitigate the problem of researcher bias. The researcher returned the edited transcripts to the interviewees for member check validation to make sure that the participants agreed to what the researcher has written as the participants' answers to the interviewing questions. Researcher bias can be reduced because the financial leaders could make any changes, additions, or corrections to the edited transcripts. In other words, the financial leaders actually have read what the researcher wrote as their answers to each interview question. This checking could ensure that the answers written by the researcher could represent the participants' perspectives accurately. There was no misinterpretation or distortion to what the interviewees have said in the interview. The researcher also sent tailored-made thank you notes to show appreciation and an executive summary of the findings to the participants.

Data Analysis

The first analysis phase involved the adoption of the general analytic strategy of developing a qualitative descriptive framework (Yin, 2014). This approach assumed that data were collected about various topics relevant to the research questions and the researcher had thought about the descriptive framework when designing the data collection instruments. As the design of the interview questions had taken into account for the topics important to the research questions about the application of online technology to foster consumer education, this analytic strategy was appropriate.

For the second phase, the organization of data followed a pragmatic approach (Patton, 2002) according to the ten questions in the interviews with the financial leaders. This approach was similar to what Lehr, Lehr, and Sumarah (2007) took in their research. In line with the first phase, the data organization followed a descriptive framework in the eight topics below:

1. What technological tools and courseware the financial leaders used to conduct financial education
2. What framework or curriculum guidelines the financial leaders adopted to develop the financial education programs
3. Why to adopt the different delivery methods of face-to-face, online delivery, or a combination of the two
4. How to evaluate the program effectiveness including future improvement plan
5. What opportunities and challenges faced by the financial leaders
6. What suggestions to policy makers given by the financial leaders
7. What suggestions to educators given by the financial leaders
8. Any additional points or ideas other than the seven above

The third phase was to relate the organized data to identify any common patterns to develop thematic analysis through the coding process (Shank, 2006). Appendix B highlights the content analysis framework. The computer program for qualitative data analysis NVivo 11 was used to codify the data under the above topics.

The fourth phase included the discussion of findings, interpretation of research results, and the final write up of the qualitative study (Shank, 2006). Through the data analysis in phase three, phase four captured the significant themes identified. For this study, the presentation included a succinct description of each theme identified through a synthesis of the financial leaders' relevant responses, and what implications for consumers, academic scholars, educators, policy makers, and financial leaders were derived from the findings.

Results

This study has resulted in a fruitful collection of valuable practical experience, insights, new ideas, and suggestions to policy makers from the financial-institution leaders in banks and credit unions in Texas. Of the 20 participants, nine leaders were from banks and 11 were from credit unions. The composition of the participants includes leaders holding the position of chief executive officers, presidents, board chairman, senior vice president, vice president, chief deposits officer, and chief marketing officer. An overview of the results included the commonly used online tools and resources for financial literacy education by the financial leaders; the factors affecting the choice of the curricular; the pros and cons of online delivery versus face-to-face education; the learning evaluation; the opportunities and challenges faced by the financial leaders. The following paragraphs provide detailed description of the results as presented under the themes identified and with **i**mplications or actionable recommendations to the various stakeholders

Commonly Used Online Tools and Resources

The commonly used online tools and resources were financial calculators and external links to third parties with the posting of online financial educational resources on the websites of the financial institutions. As one leader said, "We have a number of different calculators that are available to members, and these calculators are a kind of general areas that fall into, from mortgage calculations, loans calculations, savings, credit cards, debt management, personal finance and tax planning" (Leader07).

Another common form of online financial literacy education was available through the linkage to external websites of the financial institutions' regulators, e.g., Federal Deposit Insurance Corporation (FDIC) for banks, National Credit Union Administration (NCUA) for credit unions; to third party vendors that had business relationship with the financial institutions; and to relevant government agencies or non-government organizations. A few participating financial institutions went further to create online financial education center to provide financial literacy resources and online educational videos. Another leader offered an online college resource center with information about financial aids and college scholarships.

The online financial education was provided mostly in a one-way direction without learners' interaction. Learners had to take the initiative to pull the information together by exploring the different links in the web-sites of the financial institutions. In contrast, one participant reiterated:

> Our bank has redesigned the website… with the aim to make it become a financial resource center and not just an electronic brochure for the bank. The bank has introduced electronic tools, such as financial calculators for savings, home mortgages, cars purchase, and retirement savings on its website. It has also introduced a full financial library of banking terms with frequently questions asked.…The bank has also created a micro-site geared toward younger customers, 15 years and younger, with electronic financial interactive

> games, financial information, saving tips, avoiding scams, retirement, and provided a library of terms … (Leader 18)

The institution leader (Leader 18) had also actively made use of the social media in YouTube by creating its own in-house TV programs for financial literacy education.

Choice of Curricular Resources for the Financial Education

The choice of curricula depended on the awareness, cost, content, module flexibility, and the regulation consideration. One common reason for the choice of the curricula was related to the awareness of the resources available. Some participants liked the online materials from the National Endowment for Financial Education (NEFE). One reason for the choice of NEFE was that the materials were free of charge, easy to use, and flexible with separate stand-alone sessions. Another consideration was that the NEFE program was on the Texas state approved list for the high school curriculum.

To quote some supporting responses:

> The reason for not using the listed online courseware was mainly due to the high cost. The expense will be high in bringing the online program into one school, let alone several schools…The choice was because of the cost, easy to use, and the content, e.g., the Building Wealth materials were robust, extensive, and well layout. (Leader18)

> From the effectiveness viewpoint, the program cost, the program content, the languages used, and the audiences that the programs were geared towards were some of the considerations… We have members from all 50 states. It was therefore very important to have the education programs that were language neutral and culture neutral. (Leader 02)

> The critical criteria for the choice were cost, whether the content was up-to-date, and whether we could get the knowledge as needed. (Leader 10)

The above responses revealed that cost and content were two key factors affecting the curricula choice. Other curricular resources used included, but not limited to, Money Smart from FDIC, the Building Wealth from the Federal Reserve Bank of Dallas, Junior Achievement, GreenPath, Bizkids, and EverFi. For the credit union leaders, their preferred materials were from NCUA and the Cornerstone Credit Union League as credit unions were under the supervision of NCUA and banks were under FDIC.

Complementary Online and Face-to-face Education Experience

The financial leaders adopted both face-to-face and online delivery methods. For the face-to-face method, the financial literacy education was provided to students in schools, learners in communities, church organizations, foster homes, bank customers, and credit union members. The face-to-face education was also offered in the form of summer camps, reality fairs, home purchase seminars, luncheon seminars for the selected group employees, and other training workshops. The online learning was mostly conveyed through the financial institutions' websites in the form of third parties external links.

The financial leaders believed that the online delivery method could be complementary to the face-to-face method. A majority of the interviewees had conducted face-to-face education and used the online resources mainly to supplement their face-to-face teaching. The leaders treasured the personal interaction, learner engagement with the Ah-ha moments, and trust building opportunities that were available in face-to-face education more than in pure online learning. For example, as pointed out by one leader, "The advantages of the face-to-face method are that it could have interaction and connection with the audience. This could help to bridge the written lessons and make it come alive to potentially spark the Ah-ha moment for the audience" (Leader02).

Similarly, as commented by another leader:

> Technology is good but people still need somebody to talk with…What if people do not have phones or computers? What if the server is down? What if people need to find the cell phone when they need to do a fund transfer transaction? (Leader 17)

Moreover, the bank customers or credit union members may not be sophisticated enough to pursue the online learning by themselves. As one leader explained why the online method was not as good as the face-to-face delivery as follows:

> One disadvantage of the online technology method was that the students might not be motivated enough to take the time to do the training. Another disadvantage was that the students may lose the opportunity of learning from the answers to the other questions raised in class. They may not get the needed clarification because there was no teacher to answer their questions right away. (Leader08)

In short, the financial leaders have used both face-to-face and online delivery methods. They elaborated further about the pros and cons of providing the financial education using online method in comparison with face-to-face education as shown below.

Pros and Cons of Online versus Face-to-face Education

Based on the participants' responses, the key advantages of delivering online financial education included the time flexibility and location convenience. Online resources could be updated relatively easily. The online materials were pre-set, and the quality of delivery could be more consistent. The disadvantages of online delivery included the lack of learners' motivation without the face-to-face personal direct interaction. People had to be self-disciplined to pull the information from different sources. How consumers chose the appropriate and reliable information online was a big challenge. Online financial literacy education was also limited by the availability of the necessary Internet access and the computer literacy of the learners especially for the economically disadvantaged groups. In contrast, the key advantages of delivering face-to-face financial education, as supported by the financial leaders' practical experience, were the active interaction and personal connection with the audience. Face-to-face education also allowed tailored made learning with financial literacy counseling to consumers. The key disadvantages of face-to-face delivery were the intensive human resources required and high costs involved.

As one leader shared from his experience:

> The advantage was the trust established if the customers knew the bankers face-to-face. You are talking with a real live person. …We still are living in a society that the majority of people want to have human contact. …Neither technology

> nor human resources are inexpensive. Human resources, at least in the banking industry, are still necessary. (Leader17)

In addition to the important trust established in face-to-face learning, online financial education is also restricted by the available technology and people's technical capability. As pointed out by one leader,

> Online technology was great but its application would be limited for the people who did not have such technology. Some schools lacked the technology for online financial literacy education. We could not lose sight and had to get in front of the people to share the information. We could then lead them to the online resources and they could research by themselves. It would be hard for people to take a shot in the dark by googling it without the face-to-face teaching upfront. (Leader19)

> …the members would be receptive to online technology when they came for their basic financial transactions but they would want more direct face-to-face interactions when they needed real in-depth information and advice… (Leader10)

> …the ability to use both methods would be the best… (Leader02)

The above findings revealed that there were pros and cons for the online and face-to-face methods. The two methods could be complementary to each other instead of mutually exclusive. It is important to apply both methods to enhance the effectiveness of the financial literacy education.

Lack of Formal Evaluation for Success

One common finding from the responses was a lack of consistent method for the evaluation of success of the online financial literacy education provided by the financial leaders. For the face-to-face education, some leaders spoke directly with the customers, students, teachers, and principals in schools informally to gather feedback about the responses of the learners and what needed to be improved. For the online resources, the IT department marketing department did not do any formal evaluation on the learning effectiveness. It was, however, difficult to segregate the cause and effects explained by one leader,

> …Other than by just providing the online content, there was not a lot of direct connection with members, or if the education was making a difference. If the consumers would like to apply for something after clicking certain links or seeing the video in the website, it was hard to say whether it was because of the education … It was difficult to segregate one from another. (Leader02)

As another leader commented:

> We don't test individuals on what they learned or didn't learn. We measure our success by the number of people attending or the numbers of people that are receiving financial assistance for home ownership, or how many have opened the accounts…Those are the types of measurement that we use. (Leader11)

The responses from the financial leaders revealed that the measurement of success was not on how effective the consumers had mastered or applied the knowledge but often was about how much business generated to the financial institutions, any recognition awards won, or how many users had visited the online resources. The participants have also provided their thoughts on their plans, if any, to improve evaluation in the future as shown below.

Plan to Improve Evaluation

Most participants did not have a concrete plan to improve the evaluation. Some leaders did not think that a future evaluation plan for improvement was necessary. Providing online financial literacy education was not on their priority list and was not one of the areas that the institution was focusing on when compared with their other businesses. One financial leader thought to include the evaluation in the future marketing plan as part of the institution's overall strategic plan because the marketing plan would include community outreach.

Key Opportunities

The key opportunities arising from the provision of financial literacy education included the fulfillment of social responsibility, strengthening of corporate images, increase in marketing potential, establishment of better relationship and trust between the financial institutions and the people in the community served, and favorable regulatory consideration. Most leaders viewed the offering of financial literacy education as a commitment to social responsibility. Some leaders could gain marketing opportunities and new business whereas some leaders regarded the provision of financial education as the right thing to do to benefit the community disregarding whether new business could be generated. To quote some responses:

> I think we have a social responsibility as a financial institution to educate the members in the financial literacy…it needs to start in the school with the kids but we are here to support and be additional resource for those teachers to provide a real world application into what they are teaching in the classroom. (Leader 10)

> Financial education and financial literacy is part of our DNA as a credit union and part of our philosophy…We will like to be seen as the community partner…We really would like to see it as a way to help and support the community. (Leader 15)

In a nutshell, the financial leaders regarded that the provision of financial literacy education could generate valuable opportunities, such as enhancing corporate image, fulfilling social responsibility, and strengthening customer relationship. They, however, have also identified various challenges while providing the financial education in practice.

Main Challenges

One key challenge was how to attract people's attention to use the online financial literacy resources. There was no formal way to evaluate the learning success. For the financial leaders who tracked the users' numbers, they found a low usage of the online tools. Another challenge was the lack of the required technology with basic human needs of higher priority than taking online financial education especially for the target audience from the low-tomedium income group. For the challenges of financial resources and human resources, it depended on the different situations of the financial institutions. Program design and technical support were not challenging to some leaders because their financial institutions could make use of the available online resources and did not have to develop their own online financial literacy programs or to implement any new online learning platform.

To quote some leaders' responses:

> The biggest challenge was the required attention to the subject from consumers. Everyone was preoccupied with their work and families. It was difficult for people to have time to pause and to react to the online content. This was a challenge but also was a rewarding accomplishment if the credit union could make it happen. (Leader02)

> …the challenge was that financial literacy education was not fun…The problem was to get people to utilize the information and be interested in it. (Leader07)

The above responses indicated that financial leaders had to face different challenges when applying the online method to promote financial literacy education. The main challenges included how to motivate consumers' usage of the online resources, the need for more financial resources, human resources, and technological support to provide the financial literacy education. In additional to sharing the opportunities and challenges related to the provision of financial literacy education, the leaders have also generated some new ideas and comments on the application of online games as shown below.

Innovative Ideas and Application of Learning Games

The financial leaders have raised some innovative ideas based on their experience and industry practice. Ramadani and Gerguri (2011) defined innovation as a "process of transforming the new ideas, new knowledge into new products and services" (p. 101). One idea was to promote financial literacy practice using dynamic online joint deposit accounts established by the parents or grandparents for their children or grandchildren. As one leader replied,

> …I came up with an innovative financial literacy product…The account was developed to promote financial literacy with the families together. The demographics would be either moms and dads, or the grandparents setting up the accounts for their kids or grandkids. The way how it worked was fairly simple. Say, the parents wanted to provide an allowance to the kids and at the same time get them into saving money. The account also enabled the parents to see how their kids have spent their money. It was all automatic on a monthly basis. … Parents were able to view their children's accounts online and could see the saving habits of the children. …There were all kind of games and other things that the kids could learn about financial literacy at the website. (Leader01)

The above financial literacy product differs from regular joint account as it could specifically cater for the needs of family parents or grandparents. The account can help to promote financial literacy by encouraging a child's saving habit and enabling parents to monitor the child's expenditure. Online games about financial literacy are also available in the account website for the children to enrich their financial literacy.

Another innovative idea was to elevate the technology to the mobile app level using smart phones or other mobile devices. The suggestion was to create mobile apps that could push consumers to learn proactively instead of having consumers to pull together passive information from various online sources. As one leader suggested,

> …it would come down to the development of mobile apps that could be downloaded to the phones and to have the supporting resources behind to promote financial education proactively. …The idea is to develop a financial education series in the mobile apps to "push" people to learn proactively. The apps can help the consumers on a continuous basis systematically when they have financial issues. It also can enhance the motivation of the learners. This contrasts with the existing system that people usually have to pull out the information from the numerous online resources in the websites. The suggested app system would push the information to the consumers on a daily basis when they have the needs. One piece of information is closely linked to the next piece of information that should be known. For example, a consumer should know a credit card balance accrual of over $2,000 and is due today. The app will remind and restrict the consumer from spending because the money has to be paid back. Another example is that the app could keep track, remind, and educate the consumers of their retirement savings, e.g., the app could inform an individual about $5,000 in the 401K account today with the change in market. The app would push forward about what the individual can do further or better. (Leader12)

Most of the financial leaders supported the use of digital games to promote financial literacy education. Their views were that consumers could learn financial literacy through interesting games even without knowing that they had already attained the learning. Real life had serious financial consequences, but gaming did not. In contrast, one leader believed that the learning needed to be more concrete with real life financial practice rather than just games. As explained by this leader:

> It was not the games that allowed the children to learn about financial education. The parents needed to push the children to do it. …The learning needs to be more concrete. For example, it would be more effective to put some real money into the kids' pocket that they could use to buy something they wanted rather than just playing the games. (Leader12)

Given that a financial institution may gain favorable regulatory rating consideration under the Community Reinvestment Act (CRA) by providing financial education to the community (Office of the Comptroller of the Currency, 2014), the interview questionnaire has included a question (Question 8) regarding the financial leaders' perspectives about the leaders' suggestions for policy makers to change to promote financial literacy education for consumers using online technology. The responses to this question are relevant to the research question by reflecting the perceptions of financial leaders in providing online financial literacy education in connection with the regulatory policy aspect. The leaders' answers could also reveal useful information for regulatory policy makers to consider for potential future improvement.

Suggestions to Regulatory Policy Makers

The interviewed bank leaders regarded the Community Reinvestment Act (CRA) policy as good and did not suggest any big change to it. The compliance with CRA itself was not an overly heavy burden but some improvement was necessary. One suggestion was to develop a clear matrix or evaluation grid with explanations to bankers about how the CRA rating was determined and rated. Another suggestion was to provide an incentive under the regulatory rating of CAMELS (Capital protection, Asset quality, Management competence, Earnings strength, Liquidity risk, and Sensitivity to market risk) by adding another letter S.

As one leader suggested:

> Unfortunately, we have so many regulations in the current financial environment. However, I think that there would be an opportunity to promote financial literacy education through the regulatory process by adding a bonus incentive to the examination rating…to add a Service rating to the CAMEL…taking those ratings as bonus incentives but not punitive…to encourage (financial institutions) doing more in the communities. (Leader15)

The added S in the CAMEL rating would represent a service rating, to recognize the good community services in the form of both online and face-to-face financial literacy education. In addition to suggestions for financial regulatory policy makers, the financial leaders have given constructive suggestions to various stakeholders as outlined below.

Suggestions to Stakeholders, including government, school educators, and policy makers.

Several financial leaders suggested that the government would need to provide more resources, including tax incentives, to support financial literacy education. For instance:

> …it would be great to the credit union members if there could be a tax incentive, e.g., when buying new car or house, after completing some financial literacy courses. If the consumers completed certain financial literacy courses, they could get some tax deduction annually. (Leader06)

Another suggestion was for the government to add a standardized and interactive tool to facilitate systematic loan approval for consumers. The government could also develop an online centralized portal to match the supply of the available financial literacy education services of financial institutions with the demand from the schools in the districts like a match-maker service portal.

For the educators, one suggestion was that schools could be more open to accept the teaching of financial literacy education provided by the financial institutions, whether online or face-to-face. The leaders encouraged teachers and schools to accept the help and make good use of the free online resources so that students could benefit from learning through the expertise and real-world experience of the financial practitioners.

As shared by one leader about his delivery of financial education to schools.

> The students really like to learn, they think it is very interesting about how credit is worth…anything to do with money, they are interested in…but the teachers are opposed to it because they don't know financial education. They don't feel confident that they understand what is going on. (Leader11)

One leader pointed out that bankers were the "natural instructors" (Leader01) for financial literacy education given their financial knowledge and practical experience. Another leader responded, "…Bankers could help to support the school system" (Leader04). Similarly, "Most bank financial literacy providers can be at the forefront to help teachers and educators and to partner with them to pass the information along to the kids who needed the most…" (Leader17).

The teachers can gain from the free available online resources and the face-to-face financial literacy education offered by the financial practitioners. A win-win situation occurs as the financial leaders can serve the community through providing the financial education to schools while teachers can enhance their financial literacy knowledge.

For education policy makers, the majority of the interviewed leaders supported the current requirement of the Texas State education (Texas Education Agency, 2016) to include financial literacy as the right direction to go forward. Some leaders stressed the importance for the students to have the basic financial literacy education instead of just learning how to take the standardized tests. The current state standardized test in Texas made schoolteachers overly focus on taking the test, leaving little time for accepting the reach out financial education offered by the financial institutions freely to the school districts. As one leader said that from his experience, "anything not tested was not taught" in school. Another leader viewed that the current state assessment test was a hindrance to the financial literacy education as teachers focused on teaching the subjects required to achieve high test scores.

The responses below indicated that the burden of state test has limited the reach out of financial literacy education in schools:

> The test was a barrier of hindrance to financial literacy promotion because the mindset of the teaching was just to pass the test. (Leader01)

> The teacher would not like to spend time on teaching something not in the state test. The current focus is on reading, writing, and arithmetic but not on real life personal finance issues. (Leader13)

> The focus of the current standardized STAAR test has diverted the teachers' focus on financial literacy. The teachers had focused so much on the test preparation. The kids had so much pressure and did not have much energy left for other things. (Leader16)

Despite the financial leaders made suggestions that were separate to each group of stakeholders, the joint efforts of the stakeholders together can magnify the overall effect on fostering financial literacy. As one leader stated:

> School systems want better kids…Bankers want better informed consumers…If you can get all the individuals on the same table, you can get very big impact on financial literacy…If you can get the financial institutions, the regulators, the education department, and the local banking associations, I think it can have a much bigger impact. I really do, especially for implementing online technology (Leader01).

In other words, the stakeholders are not in isolated groups. They can share their experience. Their joint efforts can contribute to the promotion of financial literacy with the implementation of online educational technology.

Discussion

The study result above has brought forth at least five areas that are worth the attention of various stakeholders in our community. These stakeholders include schoolteachers, educational policy makers, financial-institution leaders, regulators, and financial education technology vendors.

First, the result was consistent with the literature findings about educators' deficiency in financial literacy (BenDavid-Hadar, 2015). Similarly, Beach (2016) found that the teachers in Canada did not have adequate knowledge or confidence in teaching financial literacy. The finding also supported the recommendations by Way and Holden (2009) in their nationwide report about the teachers' perceived lack of competence and confidence to teaching financial education and the need for more training. Educators can strengthen their financial literacy teaching proficiency by making good use of the opportunities offered by the financial institutions' leaders. Second, for education policy makers, the findings echoed with the recommendations by the CFPB (2016) proposing the inclusion of personal financial management questions in state assessment tests and the addition of a separate financial education course in high school. Third, the result revealed that one deficiency was the lack of concrete evaluation or follow up measurement of the online financial literacy education. This inadequate evaluation issue was in line with the prior research findings from the round table discussions by the experts in financial literacy education (Schuchardt et al., 2009). For those leaders who keep track of program success, they often evaluated the success based on online usage number of visits but not the knowledge gain or behavior change. It would be helpful for the financial leaders to consider the pre-test and post-test evaluation method as developed by Junior Achievement. Another evaluation method may be to follow up with a focus group discussion to find out any change in financial behavior as done by Du Plessis and Green (2013). The financial education evaluation manual developed by the National Endowment for Financial Education (NEFE, 2016) can be another useful resource.

Fourth, for technology vendors to develop financial literacy program, they need to consider the factors of costs, ease to use, culture, languages, and modules flexibility to meet the needs of the financial institutions. In addition, the above finding generated new insights to what OECD (OECD-US Treasury, 2008) had noted. In the OECD report, four elements were identified, namely, audience, topics, learning styles, and behavior stage, as important in designing financial education program. This study added a practical perspective from the financial leaders. Last but not least, the finding from this study calls for joint efforts and collaboration of the various stakeholders.

It would be helpful for the different agencies to meet regularly to discuss and come up with an effective way to accomplish the mission of fostering financial literacy. This collaborative spirit supports the recommendations given by the presidential advisory committees about the encouragement of partnership about the different stakeholders (Examining how technology, 2014).

In sum, with the millennial generation marching to the 21st century with technological advances in the digital age, the study through a better understanding of the perceptions of financial-institution leaders on applying online educational technology to promote financial literacy, concludes with a call for the leaders who have the vision and passion to serve the communities to collaborate and foster financial literacy for the benefits of the society.

Recommendations

This study has generated several actionable recommendations. For the financial institution leaders, they need to go beyond the comfort zone of merely providing face-to-face traditional education to the school districts. They can learn from the successful experience of the other financial-institution leaders by exploring how online financial education can add value to consumers, to their institutions, and the community. They also need to pay more attention to the evaluation aspect with follow up measurement of the online financial literacy programs. Another recommendation is to expand the financial institutions' website external links to enrich their online learning resources available in their web sites. Financial leaders cannot be complacent just on what used to work. They can improve their financial education to consumers by making use of the online financial literacy resources offered by the Consumer Financial Protection Bureau, Council for Economic Education, Federal Reserve, Federal Trade Commission, FDIC, NCUA, Treasury, and other online free resources.

For education leaders in schools, they can reserve some time and be receptive to the free financial literacy reaching-out classes and resources offered by the financial institutions, whether banks or credit unions, and to tap the benefits made available to their students. Good communication among the financial-institution leaders, teachers, and district administrators is important so as to reach a mutually agreeable visiting time schedule and to discuss how educators could integrate it into their current curricula teaching schedule. Given that educators have already been facing heavy teaching burden with a tight state testing time schedule, one way is to incorporate the personal financial literacy elements in the existing mathematic STAAR test class, e.g., how to apply compound interest calculation in real life mortgage loans, compilation of different consumer lending interest rates. Similarly, for social studies, one way is to add in personal finance ingredients such as why opening bank accounts or saving for emergency is important for minimizing personal financial crisis and maintaining national stability, as well as how to achieve well-planned personal financial goals. Educators can invite financial leaders to come and teach as volunteers. This suggestion is somewhat similar to what Maloney (2010) proposed about how practitioners can contribute to the integration of financial literacy in school curricula. In this way, students could gain from the financial education taught by the financial professionals in practice. School leaders can also contact the bank or credit union leaders proactively to solicit help in teaching or enhancing the students' financial literacy through face-to-face classes and complemented by online resources. Likewise, schools should allocate some professional development time for teachers' training in the financial literacy area to strengthen their knowledge and confidence in teaching the content.

For education policy makers, as a long-term strategy, they need to seriously consider the suggestion of adding a separate personal finance course as one of the requirements for high school graduates to arouse the public attention to the importance of financial literacy. The recent development of requiring each school district in Texas to offer a one-half credit elective in personal financial literacy in high schools, starting in the 2016-2017 school years, was a move towards the right direction as derived from the participants' views (Texas Education Agency, 2016). The Texas Education Agency (2018) has included personal financial literacy course with breakouts for course materials and student expectation in its proclamation 2019 to the Texas Essential Knowledge and Skills (TEKS). Another recommendation, similar to what OECD (2017a) has proposed as a policy implication to the G10 countries, is to start the financial education early from schools, and to incorporate more financial literacy elements in the state assessment test.

For regulatory authorities, one suggestion is to establish a centralized section in the Federal Reserve's online official link that can refer consumers to the relevant online resources interactively. The recent consolidated online inventory list for financial educators prepared by the Consumer Financial Protection Bureau (CFPB) has been a good starting step toward this suggestion. It would be helpful for the different agencies to meet regularly with concerted efforts to promote financial literacy and to sit at the same table to come up with a solution or to decide what would be the best way to accomplish the mission.

For consumers, one recommendation is to be proactive and make good use of the online resources available from the government, financial institutions, and other agencies in the community to augment their financial literacy knowledge and apply the knowledge to suit their needs. Consumers could also make good use of the available on-ground financial education resources, including face-to-face counseling, seminars, reality fairs, and other educational opportunities provided by banks and credit unions. For instance, in financial reality fairs, participants could visit booths set up by the financial institutions with interactive hands-on experience. The reality fairs participants learned through face-to-face activities about how to allocate a given budget to meet various expenses, such as rental payment, food, utilities, transportation, etc., which simulate the real-life situation (Montana's Credit Unions, 2017). Successful online education, in contrast, required learners to be self-regulated with goals setting and to seek help when necessary. Since many of the online resources are provided free of charge, consumers can make good use of these resources and spend more time on acquiring the knowledge and skills for their life-long benefits.

For technology vendors and program designers, one recommendation is to focus their designs to meet the needs of their users including the state education approval requirements. The course content can be designed with reference to the list of materials as approved by the Texas State Board of Education (Texas Education Agency, 2012). The approved materials included the understanding of bank accounts, check book balancing, home renting versus buying, money management when transitioning from home renting to owning, avoiding credit card debt, consumer loans with associated risks, bankruptcy, investment, retirement planning, insurance, charitable donation, college financing, federal student aid application, and small business establishment (Texas Education Agency, 2012). Moreover, it would be helpful to develop educational games to arouse learners' interest. When designing the programs, it is important for the technology vendors to consider the factors of costs, ease to use, cultures, languages, and modules flexibility to suit the needs of the users.

Study Limitations and Future Research

One limitation of the study was the potential researcher bias as commonly inherent in qualitative studies using interviews. The member checking technique used in this study could mitigate this limitation. The member checking process could be improved by involving more member participation such as a focus group discussion of the themes identified and the results in addition to the review of the edited transcripts if possible (Carlson, 2010). Another limitation was that the financial institutions only covered banks and credit unions in Texas. This limits the generalization power of the study. Although the study covers only the state banks and credit unions in Texas, the data collected still can have transferable potential that future researchers can consider using the result for comparison. Such transferability prospect is possible in similar context, but investigators need to pursue with caution. As Lincoln and Guba (1985) explained, the original investigator in naturalistic inquiry study could not know the sites in which "transferability" (p. 298) might be sought by future appliers. The advice to future appliers to make the transfer is to collect empirical evidence of the context similarity (Lincoln & Guba, 1985). One suggestion for future researchers is to increase the sample size and to include the other financial institutions, such as the national banks, and to expand the geographical coverage to other states or even globally since the problem of low financial literacy is present in other countries too.

In a nutshell, financial literacy is an essential life-long skill for an individual to maintain a financially healthy household and for a nation to maintain economic stability. This article brings a call for future researchers to continue with the meaningful work in fostering financial literacy. The author encourages academic, professional, and government researchers to expand their future studies on the scope and depth of the current study to make a positive change in our society. Through addressing this important issue with collaboration of the various stakeholders and application of the advanced online technology as discussed in the article, the hope is to solve the problem of financial literacy deficiency faced by Americans currently, and to avoid similar sufferings of the people once faced during financial crisis.

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Appendix A: Interview Questionnaire Guide

Q1 (a): What technological tools, e.g. webinars, online web resources posting, online financial calculators, or others, has your financial institution used to provide financial literacy education to consumers?

Q1 (b): What online courseware from financial literacy educational providers, such as National Endowment for Financial Education (NEFE), Junior Achievement, EverFi, or others, has your financial institution used to provide financial literacy education to consumers?

Q2: What curricular resources, or program guidelines, if any, have you adopted for providing effective online financial education for consumers? Why do you choose the particular curricular resources, or not use them?
Some examples of the curricular resources may be from:

- Money Smart by the Federal Deposit Insurance Corporation (https://www.fdic.gov/consumers/consumer/moneysmart/index.html)
- Building Wealth by the Federal Reserve Bank of Dallas (http://www.dallasfed.org/microsites/cd/wealth/index.html)
- Junior Achievement (https://www.juniorachievement.org/web/ja-usa/home)
- National Endowment for Financial Education (http://www.financialworkshopkits.org/)
- Jump$tart Coalition for Personal Financial Literacy (http://www.jumpstart.org/states-texas.html)

Q3: What delivery method(s) does your institution use to provide financial literacy education to consumers, namely, face-to-face delivery method, online technology, or a combination of the two? Please describe in details.

Q4: What do you think are the advantages and disadvantages of the delivery method as adopted by your financial institution as described in Q3?

Q5: How do you evaluate the effectiveness, or success, of the financial education provided by your institution to consumers (e.g., any formal evaluation rubric is used, any qualitative or quantitative measurement, formative versus summative assessment, any measurement of knowledge gain or behavior change, etc.)?

Q6: As a follow up to Q5 above, what are your plans to improve the evaluation of the online financial education success in the future?

Q7: What opportunities (e.g. social responsibility fulfillment, strengthening corporate images, marketing potential, favorable supervisory rating, etc.) and challenges (e.g. financial resources, human resources, program design, technological support, etc.) do you face when attempting to provide effective financial education to consumers using online technology?

Q8: From a financial-institution leader's perspective, what would you suggest for government policy makers in the financial industry to do or change to promote financial literacy education for consumers using online technology (e.g. for banks, any suggested change in the supervisory rating related to the Community Reinvestment Act to encourage financial institutions to provide online financial education)?

Q9: From a financial-institution leader's perspective, what would you suggest for educators, that include (a) teaching professionals, and (b) policy makers in education, to do or change to promote financial literacy education for consumers using online technology (e.g. partnering with your institution in the teaching practice of the schools)?

Q10: What other points, views, or information related to the application of online technology to foster consumer financial literacy education that you would like to add?

Appendix B: Content Matrix for Analysis

Coding	Items	Content by topics in line with the research question
Leader01 Leader02 . . . . Leader20	1	Technological tools used: Narrative data or excerpt for leaders in financial-institution (FI) FI No. 1 (Include narrative data collected from the first financial leader) FI No. 2 (Include narrative data collected from the second financial leader, and so on). FI No. 3 FI No. 4 … and so on
Leader01 Leader02	2	Framework or guidelines adopted and selection reasons:

.		Narrative data or excerpt for financial leader (FI)
.		FI No. 1
.		FI No. 2
.		FI No. 3
.		FI No. 4
Leader20		
		… and so on
.	3	Reasons for decision to use different delivery methods: • Face-to-face • On-line • A combination Similar data organization to the items 1 and 2 above for items 3 to 8.
	4	How to evaluate program effectiveness and future plan
	5	Opportunities and challenges
	6	Suggestions for government policy makers
	7	Suggestions for educators
	8	Any other points

Author Note

Dr. Hazel Lee earned her doctoral degree in education from the University of Phoenix. She got an MBA from the Queen's University in Canada and a master's degree in economics from the University of Hong Kong. She also attained the CFA (Chartered Financial Analyst) qualification. She has gained a wealth of working experience from both the banking and educational fields. She worked as an economist in the Hong Kong Monetary Authority, as the director in global financial institutions for Bank of Montreal in Toronto, as the vice president in asset portfolio management for the BMO Financial Group in New York, and as the director in strategic research and analysis for Profitstar Inc., a company of Jack Henry & Associates, in Omaha. Her teaching experience included tutoring in the University of Hong Kong, as well as teaching economics, finance, money and banking courses as adjunct professor at the Strayer University. She had also taught part-time adult distance learning classes and evening courses for the banking professionals in Hong Kong. She was an author in the development team for the Social Sciences Foundation Course for the Open University of Hong Kong. She strongly believes that learning never ends. Her wish is that one day when her life chapter closes; she can feel humbly that she has fulfilled her purpose on earth. Correspondence regarding this article can be addressed directly to: hwhlee1@email.phoenix.edu.

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