Affective, Cognitive, and Behavioral Outcomes

from a Resident Personal Finance Curriculum Pilot

BY

ERIC SHAPPELL
B.S., University of Notre Dame, 2009
M.D., Loyola University Chicago, 2013

THESIS

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Defense Committee:

Ara Tekian, Chair and Advisor
Ilene Harris
Yoon Soo Park

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SUMMARY

A personal finance curriculum was developed and piloted with a group of medical residents. The curriculum development process began with a qualitative needs assessment exploring resident financial knowledge, interest, and experience. These qualitative data were used to inform the development of a quantitative survey that was used to assess the financial knowledge, interest, and experience of a larger and more diverse sample of residents.

Using the data from the needs assessment, a consensus panel decided the goals for the curriculum and objective were drafted in alignment with the goals. Educational methods including a course website, multiple choice questions, and webinars were developed in alignment with the established objectives. Finally, an evaluation form was also developed to assess self-reported affective and behavioral outcomes of the curriculum.

The curriculum was piloted with 20 residents. Most residents agreed or strongly agreed that the content was relevant and clearly presented, and that they would recommend the curriculum to other residents. Performance on the knowledge assessment improved 21% after the intervention ($P < .001$). Most residents also reported behavioral changes (85%) with non-exclusive categories of behavioral changes including setting new financial goals, taking new action toward financial planning, and changing financial habits.

1. PROBLEM

The transition from medical school to residency education marks a significant shift in the financial circumstances of medical trainees: the shift from an organization that charges tuition to one that pays a salary.[1] With this transition comes the need for residents to make several time-sensitive decisions, including those regarding loan repayment options, whether to apply funds toward loan repayment versus investing, and whether to hire a financial advisor.

The projected economic viability of various education funding and career paths was recently reported;[2] however, this financial road is studded with important questions and is a significant source of stress for trainees.[1] This significance is reflected in the listing of personal finance as one of six key aspects of resident physician wellness[3] and draws attention to the urgency of equipping trainees with the knowledge, skills, and resources they need to make rational financial decisions.

Efforts to improve the financial knowledge and wellbeing of residents have been described in the academic literature; however, there are no reports of comprehensive financial planning curricula. To date, financial planning interventions described in the academic literature have significant limitations in scope,[4] scalability[5] and evidence of impact.[6] Personal finance resources targeting medical professionals also exist online and in the lay press; however, residents report issues of mistrust of these resources due to potential conflicts of interest and a lack of time to find, filter, and utilize these resources.[1]

These limitations leave a significant education gap that needs to be filled by a high-yield, pragmatic, nationally reproducible and sustainable personal finance curriculum for graduate medical trainees. In this report, we describe the development, pilot implementation, and outcomes of a personal finance curriculum for residents.

2. APPROACH

2.1 Overview

We developed this curriculum using Kern's curriculum design framework.[7] Deliberative inquiry throughout the development process was guided by three primary perspectives:

1. The learners' perspectives

   These perspectives reinforced the need for a rigorous approach to determining the appropriate scope and depth of content to include and how to deliver content effectively.

2. The course directors' perspectives

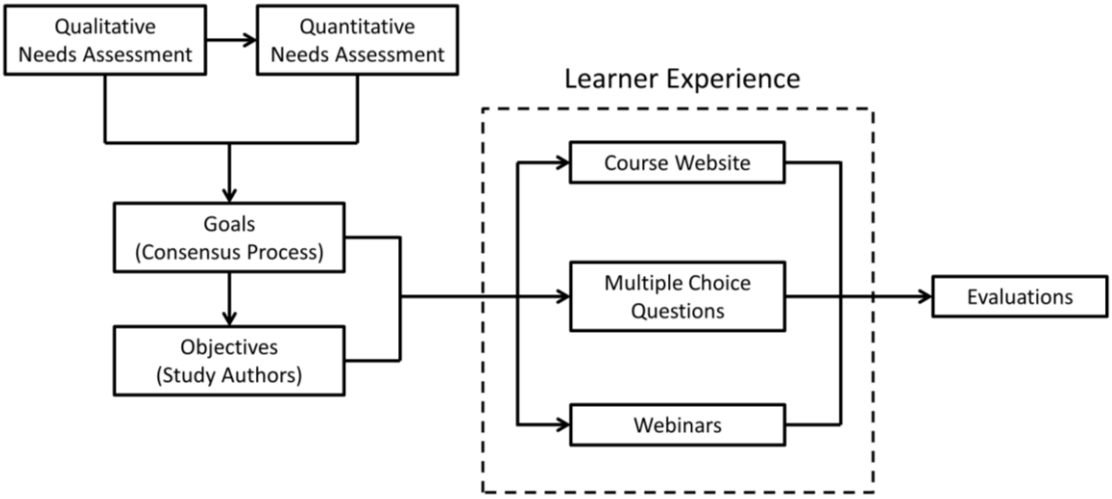
   As this curriculum is intended to be easily reproducible, on a national level, these perspectives reinforced the need to minimize curriculum design requirements of local course directors who may have limited in resources for curricular development and implementation.

3. The goal-oriented perspectives

   Given the overall goal of informed resident financial behavior, this perspective reinforced the need to draw connections between curricular content and real-world applications, as well as the need to assess resident financial behavior as an outcome.

An overview of the curriculum development process is provided in Figure 1.

Figure 1. Curriculum development process of the personal finance curriculum for residents, University of Chicago emergency medicine pilot, 2018



2.2 Needs Assessments

We completed two needs assessments in the process of developing this curriculum: a multidisciplinary qualitative study of residents' financial circumstances and interests[1] and using the instrument development model of mixed methods, a subsequent quantitative survey of a broader and more diverse resident group.[8] These needs assessments provided a conceptual framework and background data that guided the content development and delivery processes.

2.3 Goals and Objectives

Informed by the above needs assessments, a modified nominal group consensus process was used to generate curricular goals. The consensus group consisted of all local physician educators known to the study authors to have experience teaching personal finance to residents. This panel had five members and represented the specialties of emergency medicine (ES, JA),

anesthesia (2), and internal medicine (1). Goals with unanimous agreement were adopted for the curriculum. Objectives were drafted by two authors (ES, JA) to align with consensus-derived goals and desired curricular outcomes.

2.4 Education Strategies

Given residents' interest in financial education resources that are accessible asynchronously,[1] we chose written materials as the primary educational approach and created a course website (MDintheBlack.com) to host the content for learners to access asynchronously. This approach also fit our goal of creating a curriculum that will be easily scaled to additional programs.

Four authors (ES, JA, ME, MJP) composed the written content in alignment with each objective. We organized this content into five topic areas (education debt, long-term disability insurance, life insurance, investing, and financial advisors); content within each topic area was structured in the form of an answer to a pragmatic question of relevance to residents (Table 1). Each segment ends with "action items" that may be used to facilitate real-world application of course material.

TABLE I

PRAGMATIC CONTENT OUTLINE OF THE PERSONAL FINANCE CURRICULUM FOR RESIDENTS, UNIVERSITY OF CHICAGO EMERGENCY MEDICINE PILOT, 2018

Topics	**Questions / Subtopics**
Education Debt	1. Should I pursue Public Service Loan Forgiveness? 2. Which loan repayment option should I choose? 3. Should I refinance my loans with a private company?
Long-term Disability Insurance	1. Should I buy long-term disability insurance in residency? 2. What are the different types of long-term disability insurance? 3. What properties of long-term disability insurance I should consider? 4. Where can I buy long-term disability insurance? 5. How much will my long-term disability insurance policy cost?
Life Insurance	1. Should I buy life insurance in residency? 2. What kind of life insurance should I buy? 3. How much life insurance should I buy? 4. Where can I buy life insurance? 5. How much will my life insurance policy cost?
Investing	1. Should I be investing during residency? 2. The language of investing 3. Practical applications
Financial Advisors	1. Should I hire a financial advisor in residency? 2. What credentials should I look for in a financial advisor? 3. How are financial advisors paid? 4. How much will a financial advisor cost? 5. Where can I find a financial advisor?

As residents also reported interest in being able to ask questions specific to their own financial circumstances,[1] we planned two webinar sessions hosted by course contributors (ES, MJP) during which learners could ask questions, discuss topics and issues in greater detail, and learn from the sharing of experiences. Webinars were each scheduled for one hour in the evening. The webinar structure was: (1) introduce participants, (2) field questions, (3) review covered topics and (4) have facilitators share financial "pearls and pitfalls" from their own experience. Learners were encouraged to ask questions at any time during the webinars.

2.5 Assessment of Learners

We sought to assess residents' attitudes about the curriculum, changes in their financial knowledge, and financial behavioral changes occurring during or after the curriculum.

Attitudinal assessments included residents' perceived relevance of the curricular content, effectiveness and clarity of presentation of curricular content, and whether participants would recommend the curriculum to their peers.

We were unable to find an existing tool to assess financial knowledge with the depth and breadth we targeted for residents; we therefore developed a new financial knowledge assessment for graduate medical trainees. We chose the format of multiple-choice questions, for ease in grading and scalability. Using a test blueprint created from curricular objectives and guided by established standards,[9] two authors (ES, JA) authored 3 test items for each of 5 topics to yield a 15 item test. The knowledge assessment was completed by residents before and after curriculum content delivery. Residents provided written comments in response to open-ended questions

about the test items in the curricular evaluation; this feedback was incorporated into the curricular evaluation process to improve response process validity. Additionally, we examined internal structure validity evidence including item difficulty, item discrimination, and reliability (Cronbach's alpha).

Measures of behavioral changes included residents' setting of financial goals, taking new financial planning action, and changing of financial habits. Self-reports of financial behavioral changes were assessed at the end of the curriculum.

2.6 Implementation

We piloted this curriculum with a convenience sample of emergency medicine residents at the University of Chicago. Participants completing the program were offered a $10 gift card. This study was granted an exemption by the Institutional Review Boards at the University of Chicago and the University of Illinois at Chicago.

An e-mail introducing the curriculum and study was sent to all 49 residents in the three-year program. During a two-week enrollment period, residents could choose to opt-in by completing an online entry assessment via Qualtrics (Provo, UT).

We arranged the course content to be delivered over five weeks, each week focusing on one of the five topics areas. At the beginning of each week, we sent participating residents an e-mail, including a summary of the main themes for the previous topic (as applicable), a brief introduction to the new topic of the week, and a link to the relevant section on the course

website. Residents were encouraged to read the provided material and consider applications to their own financial circumstances.

We hosted webinar sessions using Google Hangouts (Mountain View, CA). One-hour interactive sessions were scheduled in the evening, at the beginning of the third week and the end of the fifth week of curriculum implementation.

After the final week of content delivery, we sent exit assessments and evaluation forms to participating residents via Qualtrics (Provo, UT). Residents were given four weeks to complete the exit assessment and evaluation forms. Only data from residents that completed the entry, exit, and evaluation forms in the required timeframes were included in the knowledge and behavioral analytics used for evaluation of the value of the program.

2.7 Evaluation

We evaluated this program from each of the perspectives applied in the curriculum development process: the learner perspective, the course director perspective, and the goal-oriented perspective.

3. OUTCOMES

Outcomes related to the learner and goal-oriented perspectives are outlined in Table 2 using Yardley and Dornan's adaptation of Kirkpatrick's levels of evaluation.[10]

At the first Kirkpatrick level (participation), 37 residents (37/49, 76%) began the curriculum by completing the entry assessment. Among participating residents, 20 (20/37, 54%) completed the curriculum within the time constraints of the pilot. Feedback from residents who did not complete the curriculum within the specified time frame suggested that spreading the curriculum over a longer period of time would allow for greater resident participation.

Regarding attitudes (Kirkpatrick level 2a), most residents agreed or strongly agreed that the content was relevant (20/20, 100%) and clearly presented (19/20, 95%), and that they would recommend the curriculum to other residents (20/20, 100%).

Performance on the knowledge assessment (Kirkpatrick level 2b) improved 21% after the intervention (pre-test: 57%, SD = 17%, post-test: 78%, SD = 12%; $P < .001$). Using Analysis of Covariance (ANCOVA), there were no significant differences in pre- and post-test performance by loan status ($P = .794$) or by year of training ($P = .472$). Item difficulty ranged from .15 to .85 on the pre-test and .5 to 1 on the post-test. Internal consistency reliability (Cronbach's alpha) was .62 on the pre-test and .63 on the post-test. Using the Spearman-Brown formula, the number of test items required to achieve a Cronbach's alpha statistic of .75 is 28.

TABLE II

KIRKPATRICK OUTCOME MEASURES OF THE PERSONAL FINANCE CURRICULUM FOR RESIDENTS, UNIVERSITY OF CHICAGO EMERGENCY MEDICINE PILOT, 2018

Kirkpatrick Level[10]	**Outcome Measure**	**Result**	**Detail**
1 – Participation	Residents: curriculum initiated	n = 37/49, 76%	PGY1: 13 PGY2: 12 PGY3: 12
	Residents: curriculum completed	n = 20/37, 54%	PGY1: 7 PGY2: 7 PGY3: 6
2a – Attitudes	Resident agreement with statement: "The content in this curriculum was relevant to me"	Strongly agree: 13 Agree: 7 Neutral: 0 Disagree: 0 Strongly disagree: 0	
	Resident agreement with statement: "The information was clearly presented."	Strongly agree: 11 Agree: 8 Neutral: 1 Disagree: 0 Strongly disagree: 0	
	Resident agreement with statement: "I would recommend this curriculum to other residents."	Strongly agree: 12 Agree: 8 Neutral: 0 Disagree: 0 Strongly disagree: 0	
2b – Knowledge	Multiple-choice assessment	Pre-test (mean): 57% Post-test (mean): 78%	p = < .001
3 – Behavioral	Resident report: new financial goal	n = 12/20, 60%	Short-term[a]: 8/20, 40%
			Long-term[a]: 8/20, 40%
			Short-term and long-term: 4/20, 20%

Kirkpatrick Level[10]	**Outcome Measure**	**Result**	**Detail**

3 – Behavioral (continued)	Resident report: new financial planning action	n = 11/20, 55%	Topic[a]
			- Insurance (5)
			  o LTD (5)
			  o Life (1)
			- Retirement (4)
			- Financial advisor (2)
			- Self-education (2)
			- Emergency fund (1)
			PSLF (1)

	Resident report: changed financial habit	n = 6/20, 30%	Topic[a] - Increased savings (4) - Financial planning (2) - Self-education (2) Budgeting (1)

Abbreviations: PGY indicates post-graduate year; LTD, long-term disability; PSLF, Public Service Loan Forgiveness

[a]Non-exclusive category

Most residents (17/20, 85%) also reported behavioral changes (Kirkpatrick level 3). Non-exclusive categories of behavioral changes included: setting new financial goals (12/20, 60%), taking new action toward financial planning (11/20, 55%) and changing financial habits (6/20, 30%).

Regarding the perspective of the course director, resource requirements for reproduction of the curriculum have been reduced through the development of a free course website that hosts content for learners. In addition, e-mail templates and copies of the knowledge assessment are available by request. Reproduction of this curriculum will require local course directors to identify and recruit discussants, with appropriate financial knowledge, for the interactive sessions.

In summary, this curriculum was successful in delivering high-yield personal finance education for residents through widely reproducible methods.

4. NEXT STEPS

It is clear that personal finance education is an unmet need for residents. The affective, cognitive, and behavioral outcomes of this study suggest that this curriculum could have a meaningful impact on many graduate medical trainees if used on a broader scale.

We are in the process of expanding implementation of this curriculum to additional programs; at the time of writing this paper, we anticipate implementation at 17 training programs in the next academic year. Curriculum implementation guidelines are iteratively updated, based on feedback from trainees and external organizations.

The knowledge assessment will be refined using participant feedback from the pilot. We also plan to collect additional validity evidence for the knowledge assessment through correlation of performance with external variables, including financial behaviors.

Finally, the longitudinal impact of this intervention on resident financial knowledge and behaviors is unknown. Going forward, we will assess long-term knowledge retention and Kirkpatrick Level 4 outcomes, including rates of goal achievement and maintenance of effective financial habits.

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VITA

NAME:	Eric Shappell
EDUCATION:	B.S., Science-Business, University of Notre Dame, Notre Dame, IN, 2009
	M.D., Medicine, Loyola University of Chicago Stritch School of Medicine, Maywood, IL, 2013
	M.H.P.E., University of Illinois at Chicago, Chicago, IL, 2018
TEACHING EXPERIENCE:	Section of Emergency Medicine, Department of Medicine, University of Chicago, Chicago, IL 2016-2018
HONORS:	Alpha Omega Alpha Honor Society, Loyola University of Chicago Stritch School of Medicine, 2013
	Alpha Sigma Nu Honor Society, Loyola University of Chicago Stritch School of Medicine, 2013
	Magna Cum Laude, Loyola University of Chicago Stritch School of Medicine, 2013
	Outstanding Contributions to Emergency Medicine, University of Chicago Emergency Medicine Residency Program, 2016
	Best Course Paper, Instruction and Assessment, University of Illinois at Chicago Master of Health Professions Education Program, 2017
	Gold Standard Award for Peer Review, Western Journal of Emergency Medicine, 2018
PROFESSIONAL MEMBERSHIP:	American College of Emergency Physicians Society for Academic Emergency Medicine Counsel of Emergency Medicine Residency Directors
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