# DESIGN ARTIFACTS AND GAMING TRANSFORM FINANCIAL PLANNING SERVICES
## MULTIFACETED EXPERIMENTAL DESIGN RESEARCH

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ABSTRACT: The global population is ever changing; living longer than ever before, society calls for new and creative tools and services to serve a population of adults living longer – and better – than ever before. Preparedness, including financial preparedness, is imperative for quality of life in older adulthood. The financial planning industry, uniquely positioned to serve this growing population of older adults, could benefit from innovative design changes to better serve their clients. This, we explored using tangible design artifacts and gaming frameworks and theories to transform financial planning services to make them more inclusive and enjoyable. We experimentally integrated the element of play, games, and learning into our research, exploring how to apply design theories and applications to financial planning services. It is a multifaceted research approach, conducting 35 expert interviews, 4 product co-creation workshops and 1 service co-creation workshop, prototyping 3 rapid game tests. We created financial planning toolkits and game components with defined steps and creative processes integrating play to re-envision our financial planning services targeting people in the stages of pre-retirement, retirement, and post-retirement. In alignment with 5 key identified design principals, the proposed innovative board-game style toolkit, combined with tangible Longevity Planning Blocks (LPBs), may empower financial advisors and their clients to have more engaging, enjoyable, and impactful conversations.

Keywords: Human-Centered Design, user experience, artifacts, evocative object, game, service design

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## 1. INTRODUCTION

We are living in the era of silver economics due to advanced healthcare, emerging technologies, better living conditions, societal stability, and other factors. Design for Longevity (D4L) has attracted the attention of our society (Ekimova, 2021; Coughlin, 2017). D4L is an unavoidable trend that transforms our culture and infrastructures, such as a new intergenerational workforce, multigenerational organizational culture, life-long education systems, and much more visible and invisible change. Aging is a global trend that we urgently need to learn how to reframe, ideate, solve, refine, and adapt to the complex socioeconomic challenges: demographic shifts, climate change, and evolving lifestyles, education, and finance. Financial competence and literacy have penetrated all walks of life, and interconnect people's daily short-term and long-term goals. To systemically and creatively study the research topic, we experimentally integrated the element of play, games, and learning into our research question: How do we use tangible design artifacts and gaming frameworks and theories to transform financial planning services to make them more inclusive, respective, and enjoyable? We applied multifaceted research approaches including conducting 35 expert interviews, facilitating 4 product co-creation workshops and 1 service co-creation workshop, prototyping 3 rapid game tests, and interviewing financial advisors, potential clients, service designers, and educators separately to help us have more inclusive and holistic perspectives to study financial planning services. In the study, we define co-creation as a more collaborative and open-mind approach to working with design professionals from various fields (Lee et al., 2023).

## 2. LITERATURE REVIEW

### 2.1 GAME DESIGN, PLAY, AND USER EXPERIENCE

Games are "designed experiences" (Squire, 2006) and vehicles for us to play (Klopfer et al., 2018). Taylor (2009) said that games can also be defined as a concept of assemblage that better helps us understand the range of actors such as system, technologies, player, body, community, company, legal structure, etc. to inform us to decompose the action of the play. Taylor (2009) further explained that "While looking at a game as it is presented as a boxed product may tell us something about the given structure of the artifact or its imagined player, understanding it as a lived object—as a playful artifact—comes via an attention to the assemblage that constructs our actual games and play." The purpose of playing games is not only for entertainment, but also for education. In a good game design, game designers have already considered the role of learning (J. Habgood & Overmars, 2006; Koster, 2005; Gee, 2003; Crawford, 1984). "The fundamental motivation for all game-playing is to learn," said Crawford (1984). Gee (2007) mentioned that good learning experiences and outcomes lay in good (video) game design including five suggested principles: 1. setting out specific and clear goals, 2. translating experiences that can be interpreted for future problem solving, 3. providing immediate feedback during gaming experiences, 4. resonating with participants'

previous experiences, and 5. explaining and sharing participants' gaming experiences with other people such as peers or experts.

To create a holistic game design, Rasco et al. (2021) suggested incorporating autonomy, motivation, and support structures through an evolving system to ensure that the games can facilitate lifelong learning to enable making more precise and effective decisions. Habgood & Ainsworth mentioned harnessing intrinsic motivation to create intrinsic integration and leveraging both can be an approach to creating a more productive and intimate connection between game design, education systems, and learning content for game participants (M. P. J. Habgood & Ainsworth, 2011). While experimentally integrating game design with educational purposes such as of financial planning, we can also think about the zone of proximal development (ZPD), an educational psychology framework proposed and developed by Vygotsky, to help us test three layers of learnability represented by concentric circles to gauge the difficulty level: learner can do unaided (inner circle), learner can do with guidance (middle circle), and learner cannot do (exterior circle). This inspired us to consider how we make game participants keep feeling challenged (game doesn't feel too easy or too hard) when we design game mechanisms.
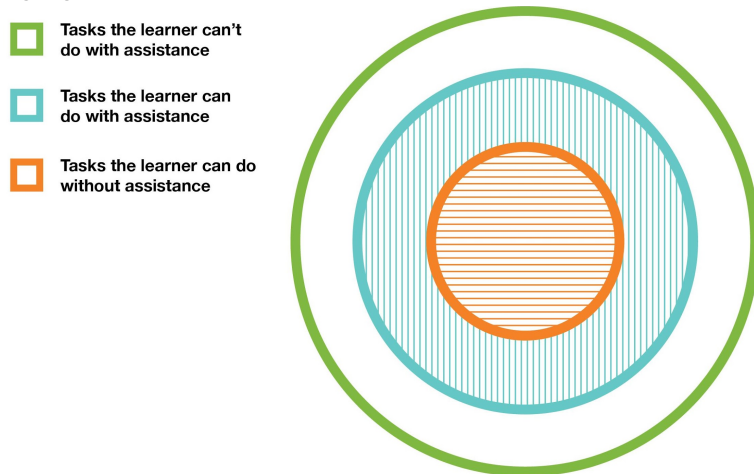


*Figure 1. The zone of proximal development (ZPD) (illustrated by the author)*

Applying ZPD to financial planning board games, we can think about the role of financial advisors or game facilitators to respond to questions such as what are the pedagogical approaches and design methods that can improve the overall financial knowledge learning experiences? What is the model of learning (e.g., constructionism, constructivism, instructivism, etc.) used by the game (Zhou & Brown, 2015)? And how does the play experience connect to the model of learning (TeachThought, 2019)? Klopfer et al. (2018) mentioned that the three keys to establishing an effective game design and development lie in rapid prototyping, frequent play-testing, and design-based research. Osterwel proposed four freedoms of play: freedom to explore, freedom to fail,

freedom to try identities, and freedom of effort, which are especially useful when we design learning experiences through play.

In industry, IDEO Play Lab, an international design company, spent nearly 25 years not only promoting the value and application of play, but also leveraging the behavior of the play to tackle today's most complicated challenges, e.g., the climate crisis, through play (IDEO Play Lab, 2022). The LEGO Group, a Danish toy design and manufacturing company since 1949, demonstrated the idea of purposeful play, that play can be suitable for people across different ages. In the study, we followed a Human-Centered Design (IDEO, 2011), design-based research (DBR) approach and selected game design principles to demonstrate the theoretical and practical results through iteration, tradeoff, and creativity (Klopfer et al., 2018; Reeves, 2006). Nadolny et al. (2019) discussed the impact of game-based learning design, emphasizing the student learning experience, theories of learning, and motivation. The current study's human-centered financial planning services and a toolkit design targets people in pre-retirement, retirement, and post-retirement — building off prior research on life phase frameworks (Golden, 2022; Coughlin, 2017) — as a case study to discuss the design concepts, application, business strategy, and social impact.

## 2.2  FINANCIAL LITERACY AND PLANNING, AND SERVICES

Even though a CFP (Certified Financial Planner) suggested a seven-step process, we still need to consider financial planning as a holistic service journey from both the service providers' (financial advisors) side and service recipients' (clients) side to co-create and deliver a core-value wealth management experience (Richey & Perry, 2022). The financial industry is transforming from designing for financial planning to creating for longevity planning (Jenson et al., 2022; Coughlin, 2017). Considering the recent economic changes (e.g., social-technological policy), demographic shifts (e.g., aging, low birth rate), and emerging technologies (e.g., ChatGPT, AI), financial literacy and financial planning services arise as focal points of interest (Rasco et al., 2021). People's level of welfare significantly depends on their financial literacy or education (Hapsari et al., 2020). Market research shows that lacking financial knowledge and motivation are key reasons for inappropriate financial behavior (Hoffmann & Matysiak, 2019). Hapsari et al. (2020) talked about the importance of teaching financial literacy to children covering a variety of fundamental financial concepts such as saving, buying and selling that can support them to cultivate suitable financial habits.

We explored using game design and DBR methodology to create innovative, inclusive financial planning services and toolkits that can be applied as an early-stage diagnostic and learning assistant tool to provoke conversation between financial advisors and clients. For example, Coughlin, Lee, and MIT AgeLab (Lee et al., 2023; Lee, 2022) co-created and co-designed Longevity Planning Block (LPB) aiming to use 14 LPBs, as a set of evocative objects (Turkle, 2007), to facilitate interactive discussions between financial advisors and clients to explore topics about wealth, health, and home (Figure

2). Pfändler applied a game-design-based approach to develop and pilot test the Happy Life Game, a financial literacy game for young adults, to discuss the younger generation's financial competence and integrate educational value through purposeful play (Pfändler, 2021). In our study, we focus our target users on the financial advisor side to build the toolkit and suggested services as an empowering financial educational tool for conversation in an engaging, fun, and respectful way to enable customers and financial advisors have serious and purposeful play.



*Figure 2. Longevity Planning Block (LPB) prototype and user testing*

## 3. RESEARCH METHODS AND PROCESS

The study involves a multifaceted creative process including literature reviews, ideation, user testing, co-creation workshop, and prototyping. In this section, we categorized two parts: 1. pre-game design research: conducting 35 expert interviews, facilitating 4 product design co-creation workshops and 1 service design co-creation workshop (Table 1), and 2. game design concept and prototype: creating game mechanisms and evocative objects.

| Research activities | Purpose of research experiments |
|---|---|
| Online expert interviews (n=35) | ● Broaden the meaning of financial planning and service design.<br>● Understand the potential opportunities for financial planning systems. |
| Product design co-creation workshops (n=8) | ● Ideate future evocative objects for financial planning services.<br>● Design financial advisors' and clients' experience. |
| Service design co-creation workshop (n=8) | ● Identify current financial planning service pain points.<br>● Envision future financial planning services and toolkits. |
| Game design testing (n=3) | ● Prototype concepts linking to evocative objects and financial planning services.<br>● Refine concepts by gathering users' feedback and iterating the design process. |

*Table 1. Research activities overview (note: n stands for number of research participants)*

## 3.1 EXPERT INTERVIEW AND CO-CREATION WORKSHOP

From October 2022 to March 2023, we conducted 35 online interviews with experts recruited from the financial industry, service design, and education. Each expert interview followed five steps: 1. recruiting the expert interviewee list, 2. filling out pre-interview survey and consent form, 3. conducting a 30-45-minute interview, 4. organizing the recorded video and interview notes, and 5. sharing and sending follow-up emails to interviewees with notes. We collaborated with 8 designers from backgrounds ranging from branding, interaction, product, graphic, and digital design to brainstorm the physical design of LPB (Figure 3). We hosted 4 rounds of 45-60-minute experimental product

design co-creation workshops with two people per round. Co-creation is a studied field to identify participants' verbal and behavioral patterns; thus we used ATLAS.ti, a qualitative research software, to analyze the video transcriptions from 4 Zoom cloud recordings. We view this immersive and controlled participatory design as modified ethnographic research. We also collaborated with Convatec, a medical equipment manufacturing company to conduct a 3-hour service design co-creation workshop with 8 participants from product design, human factor, and design research backgrounds at MIT AgeLab to re-envision future financial planning services and toolkits. We used a service blueprint as the main research approach to identify the pain points in the journey, capture team discussion and individual thinking process, and make tangible the financial planning service design and design experience of financial advisors and customers.



Figure 3. A product co-creation workshop (left) and a service co-creation workshop (middle and right)

## 3.2  GAME MECHANISM AND EVOCATIVE OBJECTS

Financial planning is a sensitive and private research topic. The process and outcome of the game and design need to be intuitive, respectful, and meaningful, but not gimmicky. We referenced six creative toolkit (card) designs—Superpowers Card Deck created by SYPartners (2016), Design Kit Travel Pack by IDEO.org (2018), The Money Deck: A Playful Guide to Personal Finance by Barrett-Forrest (2020), A Strategy Card Deck by Beautiful Trouble and The TESA Collective (2022), The Thing From The Future by Candy and Watson from Situation Lab (2015), and The Work Kit of Design Fiction by Near Future Laboratory (2022)—as inspiration and design starting point for us to modify the game mechanism and map design. Our game mechanism is based on discovery-based learning (part of constructivism, such as self-directed inquiry-based methods) (Bruner, 1961). The purpose of the game is to serve as a diagnostic tool to help financial advisors understand clients' challenges through purposeful play.

## 4. RESULTS

### 4.1  A 10-STEP USER JOURNEY MAP FOR FINANCIAL PLANNING SERVICES

We applied the proposed 10-step user journey map combined with 14 LPBs to create a safe environment physically and psychologically to help participants gain a holistic picture of inclusive financial planning services before they express needs and problems. We can view the map as a research playbook that can be used as a financial planning services/game instruction or onboarding materials for both financial advisors and clients. For each touchpoint, we added a brief explanation with 2-3 provocative questions to bring each touchpoint to life (Table 2).

| Touchpoint | Explanation | Provocative questions |
|---|---|---|
| 1. The preparation | Pre-financial planning services. Start on the client side to be empathetic and walk in the longevity client's shoes. | ● How do we consider the financial planning journeys and experiences from clients' perspectives through the lens of longevity and inclusiveness? <br> ● How do we discover opportunities to excite and delight through thinking, feeling, and observing? |
| 2. The search | Journey when clients start to look for trustworthy financial advisors. Through their research, clients learn questions to ask and vocabulary to use, and begin to frame what they think they need from an advisor. Research, often conducted by women, begins the journey. Through online searches and word-of-mouth referrals, clients begin to identify options. | ● What is your potential client's first experience of your website? What is this first "touch" like? <br> ● Do you only present information about your products and services or also about the problems beyond money that clients wish to solve? |
| 3. The first contact | Clients are exposed to financial planning services. Potential clients can contact their advisor by phone, email, social media, or in-person meetings. | ● Who is the first "voice" the client hears or reads from your office? <br> ● What do you want the client to think and feel upon contact? |
| 4. The trip | The transition from home to the designated financial advisor's office. Clients navigate the friction of traffic, parking area, walking, signage, and accessibility. | ● How does your location communicate who you are and who you serve? <br> ● How do you make the client feel special before they enter the office? <br> ● What might you do to reduce the friction of coming to visit? |
| 5. The welcome | The experience when clients start to engage with financial advisors. Clients form and confirm the impression of a firm through entering the financial advisors' offices. | ● How do you want the client to feel when they first arrive? <br> ● What do you want the client to see when they first arrive at the office? <br> ● How might you better stage these elements to orchestrate the ideal client experience? |
| 6. The conversation | Most verbal and behavioral interaction between clients and financial advisors. Clients anticipate a financial discussion but have an unarticulated need to discuss navigating life today and anticipating life tomorrow. | ● How do you ensure your conversation is so valuable and that the client wants to meet in person? <br> ● Did you tell them something they did not know? <br> ● When they leave a meeting, what new questions or ideas do you want your client to have in mind? |
| 7. The meeting | More formal financial planning discussion with financial advisors. Clients assess if they and their goals are the center of the meeting. | ● What objects do you use to conduct your meetings? <br> ● What do you wish to communicate to your client about you, your practice, and your process? |
| 8. The space | Environmental design between more toward rational planning space or emotionally engaging space. | ● Which space would make you likely to participate in a relaxed, engaged and even fun conversation? <br> ● How do you want the space where you deliver advice to make your client feel? Does it? How do you know? |
| 9. The follow-up | How the meeting concludes and the client departs, but also the extension of the current service offering. | ● How do you hope the client feels? <br> ● How do you conclude your meeting while communicating to your client that you heard and understood them? |
| 10. The wow | What and how to deliver the special something that your client doesn't expect or can make them leave with a positive impression. | ● What's your "Wow"? <br> ● How do you excite and delight your client in a way that differentiates you from other advisors? |

*Table 2. Financial planning service touchpoints (co-created by author 1 and author 2)*

We prototyped the 10-step user journey map for financial planning services by plotting out an 8'Hx4'W foam-core board (Figure 4). We demonstrated the concept at the 2023 MIT AgeLab PLAN (Preparing for Longevity Advisory Network) forum at MIT Media Lab to get participants' feedback. Most participants had financial planning backgrounds or were from retail industries.



Figure 4. The journey map design for financial advisors and customers (photo credit: Amanda Macchia)

## 4.2  A GAME MAP DESIGN

We created a 10-step user journey map for financial planning services and 14 LPBs. The game map served as a base to gather the game components. We used a Koda portable projector with a camera tripod to project three configurations of maps: line-shaped, triangular, and circle on the table or flat surface (A3 size) separately. This allows making instant modifications during the three rounds of user testing and interactive prototyping (Figure 5). Type 1. line-shaped map: a more live simplified version of the service blueprint. We designed a map structure to show not only the client-facing side of services, but also the operation side of flow and strategy. The intent is to help clients understand the costs or challenges behind the scenes. Type 2. triangular map: a tailor-made user journey from limited options to expand the path with multiple options to allow clients and their financial advisors to envision the possible future. Type 3. circular map: our client in the center of the map to create a visual cue that 14 LPBs gravitate to the center to re-emphasize the importance of clients.
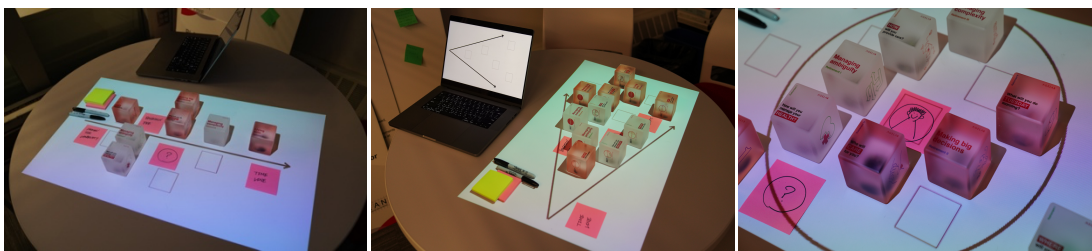


Figure 5. Type 1 (left), type 2 (middle) and type 3 (right) for financial planning games/instructions

## 5. DISCUSSION

### 5.1  CONDUCT PURPOSEFUL PLAY TO ACHIEVE CLIENTS' FINANCIAL GOALS

People save money for their entire lives with financial planning. Therefore, the attitude for gaming is very different compared with other types of play. It's serious play with purpose, unlike other games to learn financial knowledge or gain financial literacy. In the context of financial planning services, most people's goal is not to play a game, but to

consider how to make the best decisions through more interactive, constructive discussions and game simulation to envision their financial situation. Therefore, when we design financial planning toolkits or games, they cannot be gimmicky. For further research, we might dive into people's psychology and initial reactions while they are discussing their life savings, investment planning, financial goal, or other sensitive conversations to explore the relationship of design results and gamified approaches or reinterpret the term "purposeful play" to "soften" the discussion and manage people's expectation.

5.2 ITERATIVE USER TESTING AND RAPID PRODUCT AND SERVICE PROTOTYPE
The study is still in the early stage of the design process, though we have done some user testing on our deliverables. The prototyping still focuses on evaluating our hypothesis about game concept development and identifying users' desirability. For example, think about the design and development of service scripts for service providers (e.g., financial advisors). Through testing and service prototyping, we need to consider how financial advisors stimulate or initiate constructive financial planning discussions with their clients by applying these financial planning assets and toolkits. What service script guides various scenarios and challenges? How can they navigate the directions of the topics and cultivate friendly and unobtrusive vibes? These are further considerations we can emphasize. Prototyping remains paper-based. Due to the project budget, time, and resources, our paper prototyping cannot fully reflect the color, material, and finishing (CMF) of three game design components. For further research, we would love to conduct more live financial game prototyping to validate its viability and feasibility to the market position, business strategies, and product manufacturing.

5.3 USER TESTING AND EXPERIMENT EVALUATION
In the study, we defined a co-creation workshop as an open collective platform and creative methodology inviting designers with various expertise to participate. For further study, how can we engage older adults through design research experiments?

**6. CONCLUSION**
Most of our participants from expert interviews, product or service co-creation workshops, and user testing sessions view financial planning seriously. This implies that a gamified financial planning service for providers and clients needs to be designed and executed in a way that stills feel professional to establish the mutual trust and reliable image from both sides. Therefore, we suggested the following five design principles that we need to consider: 1. The mechanism of the financial planning game should be constructive, easy, and intuitive, and the rules adaptable to different clients' needs. 2. The CMF (color, material, and finishing) of the financial game toolkit should be neutral with not too complicated design language. 3. The content (e.g., text, questions, visuals) of the financial planning game should be modular to allow financial advisors and clients to build, modify, extend, and delete the content without effort. 4. The delivering service

(e.g., service script, service flow) of the game should enhance the level and intensity of clients' engagement, e.g., financial advisors should facilitate their conversation in a more lively and interactive way. 5. The service system of the game should apply the zone of proximal development (ZPD) to craft the content, and maintain incentives to ensure the game is not too hard, which could dilute the meaning of the purposeful play, and not too easy, which could easily lose the users' passion and curiosity.

## 7. REFERENCES

Barrett-Forrest, B. (2020, December 10). *The Money Deck – A Playful Guide to Personal Finance*. Kickstarter. https://www.kickstarter.com/projects/benbf/moneydeck

Beautiful Trouble, & The TESA Collective. (2022). *Beautiful Trouble: A Strategy Card Deck*. https://beautifultrouble.org/strategy-cards

Bruner, J. S. (1961). The Act of Discovery. *Harvard Educational Review*, *31*, 21–32.

Candy, S., & Watson, J. (2015). *The Thing From The Future*. https://situationlab.org/project/the-thing-from-the-future/

Coughlin, J. F. (2017). *The Longevity Economy: Unlocking the World's Fastest-Growing, Most Misunderstood Market* (First edition). PublicAffairs.

Crawford, C. (1984). *The Art Of Computer Game Design: Reflections Of A Master Game Designer*. Osborne/McGraw-Hill.

Ekimova, N. (2021). Global Megatrends and New Technologies: Challenges for and Threats to the Post-Industrial Economy. *Economic and Social Changes: Facts, Trends, Forecast / Экономические и Социальные Перемены: Факты, Тенденции, Прогноз*, *5 (77)*. https://doi.org/10.15838/esc.2021.5.77.7

Gee, J. P. (2003). *What video games have to teach us about learning and literacy*. *1*(1).

Gee, J. P. (2007). *What Video Games Have to Teach Us About Learning and Literacy* (Rev. and updated ed). Palgrave Macmillan.

Golden, S. (2022). *Stage (Not Age): How to Understand and Serve People Over 60--the Fastest Growing, Most Dynamic Market in the World*. Harvard Business Review Press.

Habgood, J., & Overmars, M. (2006). *The Game Maker's Apprentice: Game Development for Beginners*. Apress.

Habgood, M. P. J., & Ainsworth, S. E. (2011). Motivating Children to Learn Effectively: Exploring the Value of Intrinsic Integration in Educational Games. *Journal of the Learning Sciences*, *20*(2), 169–206. https://doi.org/10.1080/10508406.2010.508029

Hapsari, D. T., Suryono, Y., & Amiliya, R. (2020). 21st Century Skills; The Effect of Project Based Learning to Financial Literacy on Children Aged 5-6 Years. *Educational Administration Research and Review*, *3*(2). https://doi.org/10.17509/earr.v3i2.22370

Hoffmann, G., & Matysiak, L. (2019). Exploring Game Design for the Financial Education of Millenials. *2019 11th International Conference on Virtual Worlds and Games for Serious Applications (VS-Games)*, 1–2. https://doi.org/10.1109/VS-Games.2019.8864517

IDEO (Ed.). (2011). *Human Centered Design Toolkit* (2nd ed). IDEO.

IDEO Play Lab. (2022, February 28). How Play Can Lead the Way to a Sustainable Future. *The IDEO Journal*. https://www.ideo.com/journal/how-play-can-lead-the-way-to-a-sustainable-future

IDEO.org. (2018, June 12). *Design Kit Travel Pack*. Kickstarter. https://www.kickstarter.com/projects/581125890/design-kit-travel-pack

Jenson, B. C., Comer, J. M., Gambone, J. V., Jenson, J., & Coughlin, J. F. (2022). *Join the Longevity Revolution: A Guide for Financial Advisors and their Clients*. Longevity Revolution Press.

Klopfer, E., Haas, J., Osterweil, S., & Rosenheck, L. (2018). *Resonant Games: Design Principles for Learning Games that Connect Hearts, Minds, and the Everyday*. the MIT Press.

Koster, R. (2005). *A Theory of Fun for Game Design*. Paraglyph Press.

Lee, S.-H. (2022, December 28). From Brainstorming to Bodystorming: An applied ethnographic perspective to view co-creation workshops. *DesignWanted*. https://designwanted.com/brainstorming-bodystorming/

Lee, S.-H., Yang, M., de Weck, O. L., Lee, C., Coughlin, J. F., & Klopfer, E. (2023). Macro-Trend Study Under Service System: Preliminary Research in Service Innovation and Emerging Technology. In U. Z. A. Hamid & M. Suoheimo (Eds.), *Service Design for Emerging Technologies Product Development: Bridging the Interdisciplinary Knowledge Gap* (1st ed.). Springer Cham. https://link.springer.com/book/9783031293054

Lee, S.-H., Yang, M., de Weck, O. L., Lee, C., Coughlin, J. F., Klopfer, E., & Ochsendorf, J. (2023, July 24). Co-create Financial Planning Services for an Aging Population: Designers' Perspectives. *Design in a Complex World*. International Conference on Engineering Design (ICED). https://iced.designsociety.org/

Nadolny, L., Nation, J., & Fox, J. (2019). Supporting Motivation and Effort Persistence in an Online Financial Literacy Course Through Game-Based Learning: *International Journal of Game-Based Learning*, *9*(3), 38–52. https://doi.org/10.4018/IJGBL.2019070103

Near Future Laboratory. (2022). *The 2022 Work Kit of Design Fiction*. https://nearfuturelaboratory.myshopify.com/products/the-work-kit-of-design-fiction-2023-product-design-work-kit

Pfändler, A. M. (2021). Development and Pilot Testing of a Financial Literacy Game for Young Adults: The Happy Life Game. In C. Aprea & D. Ifenthaler (Eds.), *Game-based Learning Across the Disciplines* (pp. 61–87). Springer International Publishing. https://doi.org/10.1007/978-3-030-75142-5_4

Rasco, A., Chan, J., Peko, G., & Sundaram, D. (2021). *Evolution of Serious Games to Support Lifelong Learning and Decision Making: Design and Implementation of a Financial Literacy Game*. Hawaii International Conference on System Sciences. https://doi.org/10.24251/HICSS.2021.008

Reeves, D. B. (2006). *The Learning Leader: How to Focus School Improvement for Better Results*. Association for Supervision and Curriculum Development.

Richey, D., & Perry, S. (2022). *Finding Your Financial Advisor: How to Understand the Industry and Confidently Hire the Best*. Houndstooth Press.

Squire, K. (2006). From Content to Context: Videogames as Designed Experience. *Educational Researcher*, *35*(8), 19–29. https://doi.org/10.3102/0013189X035008019

SYPartners. (2016). *Superpowers Card Deck*. SYPartners. https://superpowers.sypartners.com/

Taylor, T. L. (2009). The Assemblage of Play. *Games and Culture*, *4*(4), 331–339. https://doi.org/10.1177/1555412009343576

TeachThought. (2019, January 6). *A Visual Summary: 32 Learning Theories Every Teacher Should Know*. TeachThought. https://www.teachthought.com/learning/learning-theories-teachers/

Turkle, S. (2007). *Evocative Objects: Things We Think With*. MIT press.

Zhou, M., & Brown, D. (2015). *Educational Learning Theories*. GALILEO, University System of Georgia. https://oer.galileo.usg.edu/education-textbooks/1/