Does Financial Knowledge lead to Financial Capability?

An Application of Behavioural Economics Concepts in Financial Education

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1. Motivation and Background

“From a policy perspective, it is crucial to identify whether the reason people behave as they do is primarily the result of lack of knowledge and mastery of relevant financial management techniques, or whether it reflects fundamental aspects of human nature.” (De Meza et al. (2008), p.7)

Currently 110 countries are members of the International Network on Financial Education (INFE), led by the Organisation for Economic Co-operation and Development (OECD). Forty-seven of these countries are in the process of implementing national strategies for financial education, of which nineteen are African countries. Whereas Nigeria, Zambia, Namibia and South Africa already implemented National Financial Education Strategies. Further, strategies are under consideration or development in Kenya, Malawi, Uganda and Tanzania. (OECD (2013))

Financial education is suggested to fulfill two main functions in emerging economies: To drive financial integration and to enhance consumer protection in financial markets. According to World Bank (2009) other key functions in many emerging markets are to counteract increasing rates of over-indebtedness and to mitigate risk.

Yoong (2011) suggests financial education to decreases the engagement of regulators and supervisory bodies in financial markets. Educated consumers respond to reforms in a more effective manner. Higher savings rates and fewer indebted households increase welfare and stability in the economy and reduce future public expenditure. Educated consumers demand appropriate, salient business practices. (World Bank (2009)) This leads to decreasing fees and charges for financial services and improved quality of service delivery. (Messy and Monticone (2012))

Financial education is thus perceived as a powerful instrument to drive financial inclusion and sustainable economic development. There is, however, a substantial lack of robust evidence for the effectiveness of traditional financial education. When assessing the effectiveness of financial education, researchers are usually concerned with the accomplished, verifiable change in outcome parameters such as an increased uptake of savings products.

Willis (2008) concludes that the multitude of studies finding either ambiguous or insignificant effects show that financial education programmes are rather motivated by ideology than evidence. Due to the diversity of consumer decisions and the innovation pace especially in emerging financial markets, effective financial education cannot prove cost-effective. (Willis (2011)). Cole et al. (2009) conclude financial education to be neither cost-effective, nor scalable. Messy and Monticone (2012) suggest that the “limited evidence available at the moment does not enable thorough conclusions to be drawn” (Messy and Monticone (2012), p.23) about the effectiveness of the programmes.

Why do policy makers and financial institutions allocate substantial amounts of resources to an instrument that is yet to be proven effective?

One potential explanation might be that the lack of robust evidence for the success of financial education programs is inconsistent with the generally accepted neo-classical predictions of its effectiveness. Thus, the evidence is disregarded, accredited to errors in impact measurement or else.

Behavioural economics might provide more suitable models to describe the observed lack of effectiveness. The methods of behavioural economics grant a more realistic concept
of financial decision-making, as they consider psychological and cognitive limitations to affect individual behaviour. Behavioural economics is suggested to explain field anomalies in a more accurate way and thus lead to clearer policy instructions. (Camerer (2002))

The research at hand is concerned with the question whether behavioural economics methods can accurately describe the observed ex-post behavioural biases of financial education training participants. An accurate description of the potential underlying psychological limitation and its implication can support the identification of remedies for this behaviour. The paper thus attempts a practical approach to integrating behavioural economics concepts in financial education.

Due to the scope of this paper, the argument focuses on the latter part of the financial education value chain (as depicted in Figure 1), the transfer of knowledge into behaviour. The chosen behavioural economics concepts are procrastination and mental accounting.

Based on interviews with practitioners, the relevance of these behavioural economic concepts and their implications for development and design of training programmes discussed. Throughout the field research, twelve practitioners were interviewed. The interviews serve to assess the relevance practitioners accredit to behavioural economic concepts in order to explain limited effectiveness of their training programmes.

2. Terms and Definitions

*Financial Education*

The Organisation for Economic Co-operation and Development (OECD) and the International Network for Financial Education (INFE) define financial education as:

“The process by which consumers/investors improve their understanding of financial products and concepts and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of (financial) risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being and protection.” OECD (2005)

This concept reflects an understanding of financial education that exceeds the traditional, narrow approach consisting of information and numeracy skills. The definition became a standard in literature and research in this field and is still widely used today. More recent concepts of financial education (e.g. Kiviat and Morduch (2012)) explicitly integrate behavioural and psychological aspects into the definition and mandate of financial education.
Financial Capability

Financial capability essentially describes “the capacity to effectively manage financial resources over the life cycle and engage constructively with financial products and services.” (Holzmann et al. (2013), p.9) The World Bank refers to this a vox-populi measurement, as it is based on the predominant understanding of good financial outcomes and behaviour of the individuals themselves.

Financial capability is thus a relative concept. It measures “the financial behaviour demonstrated by an individual that is considered by his peers to be desirable as it leads to good financial outcomes”. (FSA (2005)) This bottom-up approach allows for cultural and socio-economic factors to influence financial behaviour and practices, as much as constraints in accessibility or affordability of financial products. Financial capability also captures an individual’s ability to adapt to limitations and external constraints and to act on them.

3. Neo-Classical Models and Behavioural Deviations

The following section provides an overview of observed behavioural biases in the field of financial education that cannot be explained by standard microeconomic models. Key underlying assumptions of the neoclassical models, relevant to the discussion are described briefly.

3.1. Value Chain

The traditional understanding of financial education as an effective policy tool is based on key assumptions of neo-classical standard models: full rationality and time-consistent preferences. Financial education is predicted to be an effective tool through the mechanism of a value chain: Financial education provides financial information and skills, which leads to the acquisition of relevant and applicable financial knowledge. Financial knowledge is then translated into optimal financial behaviour. Thus, causality runs from financial education to financial behaviour (Figure 2):

![Financial Education Diagram](image)


3.2. Key Assumptions and Behavioural Biases

There are numerous observed biases, both in ex-ante and ex-post training participant behaviour, as well as in financial decision making that contradict the key assumption of neo-classical models.
3.2.1. Consistent Preferences

The time discounting model, introduced by Paul Samuelson in 1937, is a normative standard to predict intertemporal choices. In essence, time discounting describes the act of caring less about future variables, such as future utility and future costs or benefits.

One of the key psychological assumptions of Samuelson’s model is constant discounting and time-consistency. As Frederick et al. (2002) describe it: “(…) later preferences should "confirm" earlier preferences.” (Frederick et al. (2002), p. 8) Consistent discount rates do not allow for preference reversals: Short-term preferences are equal to long-term preferences. The delaying of tasks can only be attributed to e.g. underlying preferences for alternative activities.

Time-consistent preferences cannot explain observed behavioural biases ex-ante and ex-post financial education trainings. Even when participants display enthusiasm and willingness to change their financial habits, follow-up visits indicate that most training participants do not pursue the change or abandon activities before completion. (Interview OA, p.1) Trainings participants seem to be aware of beneficial financial behaviours that potentially increase their well-being, but hardly seem to act on that knowledge. (Interview CJ, p.3)

Participation rates for voluntary financial education programs are relatively low. Throughout the program, the number of participants often diminishes. (Yoong (2011), Bruhn et al. (2013)) Not all participants take advantage of mentoring elements, as a follow-up instrument, even if it is free of charge. (Interview FB, p.4) Training participants fail to do exercises at home.

Cole et al. (2009) conduct a financial education study in India and Indonesia. Even though initially training participants take up a savings account and deposit small amounts, a follow-up analysis, two years later reveals that the households have not changed their savings behaviours and un-saved some of the funds in the accounts.

Individuals seem to struggle with following through on their financial planning activities. Even though 56.8% of Namibians claim to use a household budget and are thus aware of its function and relevance, only 32% claim to stick to it. (FLI (2013))

According to standard microeconomic models, the delaying of tasks and projects can be attributed to e.g. underlying preferences for alternative activities. These true preferences might not be complying with social standards and thus cannot be expressed. (Andreou (2007))

Following this argument, South Africans do not save enough for their retirement, because they prefer not to. This might be due to a number of reasons. Cultural norms that oblige children to provide for their parents, for example. However, this refutes that after all almost half of the survey participants are worried about not having sufficient funds to sustain themselves, when old. The theoretical model of procrastination seems to offer better explanations for the observed anomalies outlined above.

3.2.2. Life-Cycle Model

A central prediction of the life-cycle hypothesis is that an increase in life-time resources will be allocated proportionally to the initial allocation of consumption over all periods of life. An individual aims at keeping the level of her consumption steady over time. According to the life-cycle hypothesis, individuals aggregate savings over the first periods of
their lives in order to finance their retirement at the same level of consumption. Further, the theory allows for a precautionary motive to save, based on the uncertainty over future income. (Modigliani and Brumberg (1954))

Low savings rates seem to constitute a substantial problem in South Africa and Namibia. The FinScope survey of 2012 suggests 67% of surveyed South Africans (16 years and older) not to save money, neither at formal, nor informal institutions. The study further revealed that 83% of the surveyed individuals did not have any retirement, pension or provident product. Nearly half of the survey participants were worried about not having enough money for old age or retirement (48%).

Over-indebtedness is a considerable problem in South Africa. The latest credit bureau monitor of December 2014 of the National Credit Regulator (NCR) reveals that of 82.13 million accounts, 22.28 million are impaired. 44.9% of the consumers have impaired credit records. (NRC (2014)) This suggests a limited ability of consumers to service their debts.

Another key underlying assumption of the life-cycle model is the fungibility of money. It implies that every unit of money is substitutable for another, irrelevant of the origin, label or form it is in. Individuals are assumed to be indifferent between spending a dollar of their regular salary, a dollar of their annual bonus or a dollar of their pension fund.

Ashraf et al. (2006) find individuals to display a taste for commitment savings accounts. Savings and Credit Clubs in Southern Africa are a popular informal savings product. A debt-puzzle exists, which describes the tendency of individuals to borrow at high interest rates, even if liquid savings are available in order to make a purchase. The authors further find consumers to actively save or invest money in accounts that are sufficiently illiquid in order not to be released and used for consumption smoothing. (Choi et al. (2003))

Consumption decisions are based on the present value of lifetime wealth, which is determined by present wealth and expected future income and its probability distribution. Every dollar earned should be allocated to current consumption and future discounted consumption according to the initial allocation. This is violated by the observation of individuals’ tendency to spend windfall gains. Small windfall gains should have no effect on spending decisions when consumption is determined by lifetime-wealth. Finding 10$ in the streets should not have a noticeable impact on an individual's lifetime wealth and thus no effect on her consumption pattern.

Spending seems to be based on current income, rather than on life-time wealth. Small windfall gains are spend with a higher propensity than an equal amount added proportionally to monthly salaries. Windfall gains are found to be spend on luxury products rather than on necessary expenses.

Individuals seem to treat different sources of income in different ways. Thaler (1999) find the propensity to spend money to decrease from current income, to current assets to future assets. Regularity of income, as well as the source of income seem to be important in deciding whether and on what to spend the money. Monthly salaries are used to cover monthly expenses and costs of living. Individuals rarely purchase luxury goods with general income. Pre-labelled money, such as child allowance remittances, are commonly spend for their purpose. (Kooreman (1997))
4. Corresponding Behavioural Economics Models

The subsequent models offer the behavioural economics approaches, responding to the standard microeconomic models, outlined above.

4.1. Present-Biased Preferences

Procrastination is a well-known cognitive limitation that individuals encounter on a daily basis. It describes the tendency to delay or to put-off an action, despite knowing it is better to do it immediately. Procrastination is commonly considered to be an implication of specific time preferences, present-biased preferences. The underlying assumption is that people have steeper discount rates for the near future than for future periods that are further away. Frederick et al. (2002) would thus say, the later preferences do not confirm the earlier preferences.

Procrastination is a cognitive structure that leads individuals to prefer immediate benefits, even when paired with high future costs and to delay immediate costs, even when paired with high future benefits. It is suggested that immediate costs or benefits are represented in a more salient way than future costs or benefits and thus the discount rates are steeper for the near future.

The quest for instant gratification leads people to make decisions that aren’t optimal for them in the long-term. While individuals are commonly aware of the tendency to procrastinate, they might not be fully aware of this underlying cognitive structure or the magnitude of their constraint. Further, people struggle to predict procrastination and thus to find strategies to overcome it.

4.1.1. Theoretical Model

O’Donoghue and Rabin extend the classical model for time-inconsistent preferences by allowing individuals to be either partially or fully aware of their self-control problems. It is a two parameter model with parameter $\hat{\beta}$ capturing an individual’s self-control problem. Future utilities discounted by the standard long-run, time consistent discounting parameter $\delta$, which is multiplied by the self-control parameter $\beta$.

Thus, for all $\beta < 1$ the discounting between present and future is larger than between any two future periods. For $\beta = 1$, the function reduces to the standard model of exponential future discounting.

For all $t$:

I. $U_t(u_t, u_{t+1}, \ldots, u_T) \equiv \delta^t u_t + \beta \sum_{t'=1}^{T} \delta^{t'} u_{t'}$ where $0 < \beta, \delta \leq 1$

Additional to the self-control problem, agents might be naïve with respect to their expectations about their degree of self-control problems. An agent can be of the opinion that future preferences are identical to current preferences not accounting for a change in taste.

II. $\hat{u}_{t+s} = u_t + \hat{\beta} \delta u_{t+s+1} + \hat{\beta} \delta^2 u_{t+s+2} + \cdots + \hat{\beta} \delta^n u_{t+s+n}$ (following Della Vigna (2009))

This is indicated by parameter $\hat{\beta}$. For all $\hat{\beta} > \beta$ the agent is underestimating her self-control problems, meaning that she is partially naïve about the magnitude of her problem. If $\hat{\beta} = \beta$ the agent is sophisticated about her self-control problem and is fully aware of the degree. Fully naïve agents are not aware of their self-control problem, so parameter $\hat{\beta} = 1$ the agent is fully naïve. Individuals will choose to consume too many leisure goods and too little investment goods. The authors extend this analysis to three types of agents: people with standard time-consistent preferences (TCs), and two types of people with present-biased preferences, naifs and sophisticates. Naifs are not fully aware of their self-control
problem, whereas sophisticates are aware of their cognitive constraint. TCs will complete the action in a given period if, and only if, it is the perfect period to do so, given her current preferences.

The TC will complete the action in period \( t \) if the inter-temporal utility in period \( t \) is greater when performing the task in period \( t \) than in any later period \( \tau \). Naifs, have the exact same strategy decision process as TCs, as they believe they are time-consistent. Lastly, the agents who are aware of their present-biased preferences, the sophisticates will complete the action in period \( t \) based on their current preferences and their perceived future behaviour. O'Donoghue and Rabin offer various predictions for the behaviour of sophisticates. They might anticipate their delay and thus complete the task even before a time-consistent agent would do so, or they complete it with a short delay.

4.1.2. The Behavioural Economics Life-Cycle Model

A corresponding behavioural economics theory to Modigliani’s life-cycle hypothesis was developed by Shefrin and Thaler (1988). They integrated key behavioural concepts, such as self-control, mental accounting and framing in their intertemporal consumer choice theory. The main assumption of the behavioural mode is that households’ assets are not perceived as fungible.

Self-control aspects are captured by assuming two sets of mutually inconsistent preferences in every individual, a doer, with a short-term focus, and a planner, with a long-term perspective. Mental accounting is considered as a main assumption, as well as in allowing for different marginal propensities to spend money, allocated to different accounts.

4.2. Mental Accounting

Mental accounting is a mechanism of separation of different money categories. Richard Thaler defines mental accounting as “cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities.” (Thaler (1999), p.1) Mental accounting describes the entire process of coding financial outcomes, assigning them to respective mental categories and evaluating them.

The assignment of expenses to different budgets facilitates a simple trade-off analysis and an effective way of monitoring household cash-flows. Individuals keep ‘living expenses’ mentally separated from ‘entertainment’ or ‘health expense’. This can be seen as self-control mechanism, as each mental budget is constrained and thus serves as a personal pre-commitment tool. Heath and Soll (1996) confirm individuals to reduce their spending in a category, if the particular budget is depleted. Over-spending in one of the budget categories, bears consequences, such as intra-personal conflicts and a guilty conscious. (Shefrin and Thaler (1988))

Mental accounting describes multiple cognitive processes with different implications for individuals’ financial behaviour.

4.2.1. Theoretical Model

Thaler (2008) follows the prospect theory of Kahneman and Tversky (1979). Their theory is based on a value function, which is defined over gains and losses rather than absolute values of wealth. Gains and losses are perceived relative to a benchmark, commonly the status quo. The value function is convex for losses and concave for gains, with diminishing sensitivity. Further, the slope of the loss function is steeper than that of the gain function. Intuitively, a loss of 10$ causes more pain, than a gain of 10$ causes joy.
Individuals do not necessarily evaluate financial outcomes separately. There might be temporal limitations that constitute the boundaries for evaluation. A gambler participating in a poker tournament might not see every game as segregated financial outcome but instead evaluates the outcomes entire evening jointly.

With a relatively small difference between the loss and gain, integration might yield more value, as the cancellation of losses with the smaller gain might have a greater value than the gain itself. However, in the case of a relatively small gain and a large loss, segregation might be preferred. Thaler (2008) labels this ‘silver lining’. The loss function is relatively flat at $-y$ so that the small gain $x$ will not make a great difference in cancelling some of the loss, but will yield larger value on its own.

Gains and losses are felt relatively to a benchmark. This is a reference point usually determined by expectations based on the status quo. If the expected gain realizes in conjunction with an unexpected component, the change can be either integrated or segregated. Thaler (2008) suggest individuals to prefer an increase in a gain to be segregated whereas a decrease in a gain to be integrated. An unexpected increase in a loss should be integrated, whereas a decrease in a loss should be segregated.

**Figure 4:** The value function. Segregation or integration of gains and losses. Two cases.

Financial outcomes are perceived differently, depending on whether they constitute a loss or a gain, relative to the reference point. Individuals might segregate or integrate financial outcomes with others, in order to maximise their happiness. The perception of financial outcomes is the first step towards decision-making. The judgement process and final decision-making process are based on the theory of transaction utility, outlined in the following section. The value function is suggested to be an underlying model of mental accounting, as accounts are used to separate or integrate gains and losses. (Thaler (1985))

4.2.2. Transaction Utility Theory

Thaler (2008) argues that costs are not perceived as losses. When making a purchase individuals rather receive two kinds of utilities, an acquisition utility, which corresponds to the intrinsic value of the purchased good minus the price paid for it, and a transaction utility, which is based on the difference between the actual price and a reference value.

This can be explained by using three different price concept. May $p$ be the actual price for good $z$ and $\hat{p}$ be the value equivalent of the product. This concept corresponds to
the reservation price in standard economic models. The reservation price is the maximum price an individual is willing to pay for a good. This assumption is disregarded by the transaction utility theory. By introducing a third price concept, \( \hat{p} \), as a reference price, individuals might be willing to pay more than the value equivalent of a good, if they perceive the transaction as extraordinarily good.

Acquisition utility is the utility an individual gains from purchasing a good. It is defined as \( v(\hat{p}, -p) \) or similarly \( v(z, -p) \). If the good is bought at the value equivalent of the good, the amount of money that makes an individual indifferent between receiving the good or the amount, the acquisition utility is zero. Acquiring a good or service corresponds to a mixed gain, as an individual will only purchase the good if the gain is larger than the loss. These two financial outcomes are commonly integrated. The price paid for the good is thus not felt as a loss.

Transaction utility is the difference between the price paid by the buyer \( p \) and reference price \( \hat{p} \). The reference price depends on the context of the decision as well as the perception of the costs of the seller, which Thaler (2008) attributes to the perception of fairness.

The main constraint of a consumer is her current income stream, which, as discussed above, is most prone to be spend on consumption. This is a local temporal budget constraint and usually comprises of a month, as most expenses are incurred on a monthly basis. Secondly, the purchase has to be in line with the respective budget the purchase will be assigned to. (Thaler (2008))

5. Consequences for Development and Design of Financial Education Interventions

Psychological limitations can affect the uptake, completion and effectiveness of financial education interventions, as well as the quality of financial decision-making. These two dimensions need to be studied separately. For the former, the concept, design and delivery of financial education are key parameters. For the latter the content of the training program is relevant. (Della Vigna (2009))

5.1. Integration of Behavioural Economics Concepts

The nation-wide financial education program in Brazil, launched by the federal government and supervised by the Brazilian central bank, integrates behavioural economics concepts in financial education. The material features so called ‘blinkers’ that educate training participants about the concepts and real-life implications of their psychological constraints. (Ferreira (2011))

“"If you design any program without considering (behavioural economics concepts), it will only be an information transfer. It might be wasting your money. I would say we haven’t spent enough time to think of innovative and creative solutions to apply behavioural economics insights.” (Interview FB, p.3) Interviewee 4 suggests behavioural economics to have “a relevant say on the education side. (...) in the end it should be integrated into the education programs. When it is geared correctly and taken from the right angle, it can be very beneficial. Understanding the client and increasing your knowledge about the client will offer a better impact of your training programs”. (Interview CE, p.2) Interviewee 1 perceives behavioural economics concepts to be a key consideration in the design of future programs of the German organisation for international cooperation. (Interview SI, p.1)
5.1.1. Creating awareness

Yoong (2011) suggests consumers to benefit from awareness creation as it leads to de-biasing of their decision-making progress. Explaining an individual’s intuitive decision-making process and the heuristics applied, might lead the individual to undertake a more rational approach. The author proposes the integration of a diagnostic tool, such as a self-test to estimate the degree of the individual’s taste for immediate gratification. This is proposed to empower the individual to consider her self-control problem in future financial decisions. In order for this self-test to prove effective, it must be followed by strategies to overcome the bottleneck.

This is in line with the findings of the model outlined above. Individuals who are not aware of their impulse to procrastinate cannot take measure to counteract it. Contrary, partially or fully aware individuals try to find mechanisms to overcome the constraint. (O’Donoghue and Rabin (1999))

Interviewee 11 agrees to this approach as it enables training participants to realize the link between psychological constraints and their financial behaviour. She suggest this to lead to de-biasing. Awareness can be created through self-assessment questionnaires, discussions or exercises that promote the surfacing of habits and impulses. (Interview GL, p.2 and Interview SI, p.3) Yoong (2011) suggests a list of behavioural warning signs that participants can refer to, when taking a decision.

Further, a concise explanation of the concept might relieve some participants, as it illustrates its universality. (Interview FB, p.3) Interviewee 5: “I think it (…) takes away disappointment and stress that (you) haven’t done what (you were) supposed to do. And a stress-free environment is important for training.” (Interview CJ, p.3)

Andreou (2007) states the following:

“If one refuses to recognize the possibility of genuine procrastination, (…) then one is unlikely to (…) recognize that they might welcome help realizing proclaimed but unpursued ends. Relatedly (…) a procrastinator may, to avoid both cognitive dissonance and the charge of hypocrisy, stop expressing her global preferences and may ultimately start thinking of herself in a way that makes self-conception accord with her conduct.” (Andreou (2007), p.8)

An individual, who wants to plan her finances but keeps delaying the budgeting process might thus, over time, accept that she is not the type for budgeting or achieving financial goals through discipline and thorough planning. Addressing procrastination in financial education programs can counteract this adaption process and point a potential strategies to overcome the habit.

On the other hand, de Meza et al. (2008) suggest awareness creation for procrastination to have a potentially small effects. Introducing behavioural economics concepts as an element of the financial education program, might lead to information overload or derail participants’ attention rather than mitigate procrastination tendencies. Francois Brand agrees that the additional elements might burden participants’ cognitive capacity. (Interview FB, p.4) Interviewee 9 voices concern about the complexity of certain psychological bottlenecks. Psychological concepts are especially difficult to communicate to people, who have not been exposed to psychological drivers before. However, if the concepts were introduced by using real-life examples, it might be effective to integrate them. (Interview DN, p.2)
Contrary to the intuitive concept of procrastination, mental accounting seems to be more abstract and less salient, and thus might be more difficult to understand. The question whether these concepts are comprehensible for training participants or simply contribute to information overload and depleted attention remains. Interviewees feel it is important to identify an adequate manner to address mental accounting with financial education messages. As it “can potentially be quite a confusing concept.” If mental-accounting however is exemplified and illustrated with real-life situations, it might support individuals to understand and monitor the mechanism. (Interview DN, p.2)

5.1.2. Repetitive Enforcement

“Behaviour change is a process and not an event. If the objective of the intervention is a shift in behaviour, it is required (to come back).” (Interview DN, p.2)

The repetition of messages might support individuals to overcome their procrastination problem. Knowing that there will be a follow-up sessions or mentoring elements might support individuals to make changes. They might feel obliged to change their behaviour in order to have something to show the trainer. If the facilitator returns after some time. Changing behaviour “cannot be a once off exercise. It is a continuous process.” (Interview CE, p.1)

Interviewee 9 suggests the concepts of teachable moments to bridge the gap between knowledge and behaviour as it links the two components. Only relevant information is delivered at a point of engagement with the banking institutions. The banking customer by default receives the key messages and thus cannot procrastinate the education component.

5.2. Integration of the Concept of Procrastination

Procrastination can impede the participation and completion of a financial education course, delay financial planning, or savings for retirement. The concept of procrastination might find powerful remedies in institutional and organisational design, rather than in financial education interventions. It is sensible to assume that a self-control problem is difficult to address with a self-imposed solution that a financial education training proposes.

Various authors argue negative financial behaviours, such as under-saving (Choi et al. (2002)) over-spending and over-borrowing (Meier and Spenger (2010)) to stem from procrastination, or present-biased preferences.

5.2.1. Reducing costs

Procrastination is made possible by an available choice-set offering alternative options with instant gratification at all times. In order to increase competitiveness among these alternatives, immediate perceived costs can be reduced.

Attending and completing a financial education course might pose considerable effort costs, emotional distress, especially for financially troubled participants, and opportunity costs. Procrastination could thus explain low participation and drop-out rates. Even if participants are eager to solve exercises or start their own budget at home, other activities offering immediate gratification present themselves.

Sprenger and Meier (2008) conduct a field experiment to establish a correlation between time-preferences and participation in a free financial education course. They find a positive correlation between patience (a lower future discount rate) and participation a free credit counselling session. Individuals with heavily present-biased preferences, are less likely to participate in financial education programs. Individuals, who might have a stronger need for financial education training, are less likely to participate in it.
Yoong (2011) suggests the costs to participate in financial education programs to be specifically high for lesser financially-literate individuals. In anticipation of the information overload and the emotional distress, they might delay or put off the participation in financial education programs specifically.

Transaction Costs

Interviewee 3 sees the quality of services provided by financial institutions as one of the drivers of procrastination. “We cannot overcome bureaucracy with financial education (…)”. (Interview OA, p.1) The anticipation of having to wait in line for hours, or travelling extensive distances to reach a bank branch in rural regions, adds to the immediate effort costs of the activity. Even though these costs cannot directly be reduced by financial education, outlining strategies to avoid queues might promote action. Individuals can be encouraged to keep their savings in a lockable box for a week after they received their salary on payday and bank the money, once the queues have decreased. Pointing out peak days at retail banks or agent networks of banks that can be used to deposit money might however support consumers in taking actions.

Search- and Information Costs

Another suggested factor adding to the anticipated costs of interacting with financial institutions, is the complexity of financial services in emerging markets. Identifying adequate financial services can be a lengthy process. Yoong (2011) refers to the simplification of financial decision making as a “requirement” for financial education programs. They can offer proven heuristics or rules-of-thumb that are easily remembered and economize decision making. This is especially relevant in emerging financial markets, as business practices such as bundling and packaging of products, outlined in chapter 3, are increasing the complexity of choice.

Other tools can be offered to reduce search and information costs. The FLI training material on investing and borrowing, offer tables that function as “a tool with which clients can compare the different products based on their key characteristics, such as term, risk, potential return and level of consumer protection.” (Interview FB, p.2)

This approach can be advanced by identifying and pre-selecting accessible and affordable financial products for the training target group. PlaNet Finance Southern Africa (PFSA) developed a brochure as part of a financial education curriculum for a non-profit organisation of Savings and Credit Groups (SCGs). The brochure lists all available group accounts and their key features, in order to facilitate an easier decision-making process.

Emotional Distress

A considerable cost in opening a savings account or shopping for information might be what Bertrand et al. (2006) describe as an “unfamiliar, threatening or stigmatizing” (Bertrand et al. 2006, p.12) situation, which might lead to emotional duress when entering a financial institution. Financial education programs can encourage participants to overcome feelings of inferiority, by taking participants to visit banks, providing original templates, or asking a bank teller to join the course. This is obviously a problem prevailing among unbanked, or underbanked individuals. (Interview CE, p.3)

Planning Costs

Another support strategy to reduce anticipated costs can be the provision of concrete plan outlining the activity step by step. Interviewee 2 suggests that trainees might find it
easier to register their business for tax with the Ministry of Finance, if they are provided with the relevant template during the training and helped with the completion. (Interview OA, p.2)

This approach can be extended to offering options for immediate actions within the training program. Participants with procrastination tendencies can open a savings account during the budgeting and savings training session. “Maybe the program should have an aspect that offers the doing. After all these financial messages about savings, there should be an aspect where I am given an opportunity to open a bank account, right then.” (Interview KF, p.2) Bertrand et al. (2006) suggests support in completing the first steps to be a sufficient driver for many to complete the whole process. The authors find an increase of 20% in the uptake of a savings account when having a bank representative assisting with opening accounts during the training.

Schoar and Tantia (2014) modify a one-hour financial training session by adding a “doing element”. After a budgeting and savings session, the coach delivers a one-on-one session to set up a default infrastructure for participants to reach their savings goals. The authors find positive results for the savings levels of treated participants, even though the number of participants does not allow a general statement.

This field experiment is set in a developed context. Potential fees for automatic transfers, or penalty fees for insufficient funds and a low penetration of online banking might hamper the replication of this approach in financial education programs in developing countries. However, the acceptance for mobile money solutions specifically for remittances is gradually increasing in Southern African countries. Perhaps these services can offer support structure for automatic transactions.

Yoong (2011) suggests the presence of a representative of the local bank branch to reduce costs for training participants and thus promote opening accounts during the training session. Whether this also promotes the usage of the bank account is questionable. Another critical aspect might be the scalability of this approach, as the suggested solutions are time-intensive and require one-on-one training sessions. Classroom-based interventions are costly and can amount to 14 US$ - 20 US$ per person trained. (Deb and Kubzansky (2012))

This does not include private sessions with each of the participants. “In a world of unlimited resources it would definitely help to take participants to the bank, to fill out templates and thus lower the barriers. But this is a question of human resources, money etc.” (Interview SI, p.2)

Mapping

Interviewee 8 suggests breaking larger activities down into a number of intermediate steps, in order to support individuals to overcome procrastination. The task will further become more concrete for the individuals. Opening a bank account might be an abstract task in an individual’s head.

Yoong (2011) supports this argument. Desired financial outcomes might be intimidating when framed as an ultimate result. A more approachable framing might be the listing of subsequent steps, in order to “visualise individual progress”. (Yoong (2011), p.20) If this structure of small steps is complemented by regular reminders of upcoming tasks, individuals might find it easier to follow through. These findings have been confirmed in the context of voting and receiving vaccination.

Education Costs
The reduction of costs also plays a role in the uptake and completion of financial education programs. As discusses, participation rates are low and decrease further throughout the program. Yoong (2011) suggests younger participants might be present-biased to a greater degree. Thus, it is key to highlight the short-term benefits of the program, when marketing the program.

Another possible option to reduce the anticipated costs of a financial education program is the delivery. Providing the training at an easily accessible venue, in the local language of the participant might reduce the costs. Interviewee 10 emphasises the importance of delivering training in local languages. It removes a barrier as participants might think they will not understand the program entirely or are not able to answer to questions.

The model of O'Donoghue and Rabin (2002) suggests that costs associated to these steps should be decreasing in order to promote completion of the task. This can also be facilitated by highlighting the gradual benefits achieved when completing each step.

5.2.2. Offering Commitment Tools

The model of O'Donoghue and Rabin (1999) introduced above suggests an explanation for low saving rates, specifically for naïve agents. When money is available, consumption offers an immediate reward, whereas saving is perceived as immediate costs and a delayed benefit. Thus, individuals with present-biased preferences will save too little and consume too much. A demand for commitment savings products or illiquid facilities can be explained by the attempt of sophisticated individuals to gain control over their self-control problem. This might also be a possible explanation for the debt puzzle. In order to counteract the temptation to spend their savings, individuals might consider them ‘untouchable’ even if the only alternative is to borrow at a higher interest rate.

Brune et al. (2011) offer formal commitment and non-commitment savings accounts to small-scale farmers and agricultural workers in Malawi. The authors find a significant effect of the commitment account on savings rates, agricultural inputs, crop sales and access to funds during the lean months. The authors suggest the commitment savings tools to counteract self-control and procrastination of farmers, as well as to hinder social network demands, from relatives, neighbours and friends to deplete the funds.

Ashraf et al. (2006) develop a commitment savings product and test its impact in the Philippines in an experimental set-up. They find evidence for individuals with a greater identified degree of hyperbolic discounting to be more likely to take up commitment savings devices. The SEED (Save, Earn, Enjoy Deposits) account offered two commitment options.

Even though the field experiment is a supply-side intervention, financial education programs might be able to replicate the success, at least partly, by facilitating the process of designing self-made commitment tools. Especially programs for unbanked individuals can promote commitment savings tools, such as locked boxes, involving spouses, family members, or trusted community members. Relatives keep the key, while the saver keeps the box.

Apart from the content of the financial education program, the design of the training material can consider self-commitment elements. This can take the form of a simple signature line at the bottom of a budget sheet. Encouraging the participant to sign the budget sheet in the presence of business partners, spouses or other family members, in order to commit to it, may have beneficial effects.
Interviewee 11 deems commitment tools effective: “I absolutely believe it can help, to make people sign an agreement with themselves. I have come across programs with micro-entrepreneurs where we got people who were part of cooperatives, to make commitments to themselves and set targets on how to change simple things, for instance starting to keep records. We teach them how to do it and at the end they will sign a self-commitment contract.” (Interview DN, p.2)

5.2.3. Addressing Windfall Gains

Mental accounting is a cognitive framework, which supports individuals to manage and counteract self-control problems, contrary to procrastination, which constitutes a self-control problem. Whereas procrastination finds application in both design and content of the financial education programme, mental accounting can mostly be addressed through the content.

Arkes et al. (1994) propose that regardless of the income source, windfall gains are more likely to be spend. Unexpected gains are spent faster than anticipated gains. More recently Milkman and Beshears (2008) study the likeliness for small windfall gains to be spend, using the framework of an online grocery store and a 10 $ rebate. The authors argue in line with preceding papers that the marginal propensity to spend a windfall gain decreases in its size. Small gains are managed by heuristics, due to smaller perceived cost of error. They find that the 10$ rebate on groceries increased the amount spent significantly. Secondly, the treated customers bought goods they usually do not purchase in absence of the rebate.

Anticipating this behaviour financial education programs can include a content element counteracting the propensity to spend. Another assumption of mental accounting is that smaller daily or weekly amounts are perceived in the account of ‘petty cash’ and commonly not budgeted in order to economize on decision-taking. This applies for expenses, but might hold for income as well, if it is not assigned to a budget, like the ‘grocery’ rebate. (Thaler (1999)) Thus if an exercise or activity in form of a case study could accumulate these small windfall gains, it might convince training participants to save them.

Thaler (1999) provides such a ‘case study’, an advice submitted to a Wall Street Journal column by a reader:

“I started a little ‘side’ savings account eight years ago. During the day, I try to accumulate change. If I spend $4.50 at a store, I give the cashier a $5 bill, even if I have a 50 cents in my pocket. At the end of each day, the money is put aside. If I have no change, I put a $1 bill aside. I add income tax refunds, money from products I purchased and returned for a refund, and all those annoying little mail-in rebates they give you when you purchase batteries, shaving cream, and so on. I end up painlessly saving between $500 and $1000 each year.” (Thaler (1999), p.21)

Huffman and Barenstein (2005), identify a general unwillingness to borrow between paydays. Workers seem to prefer to reduce their spending, even if they have access to a credit card. The authors interpret this as a reluctance to spend future income. Thus, financial education messages might be more effective if the process of borrowing money is referred to as spending future income. By finding a mechanism to include this ‘future income’ notion in every borrowing decision of training participants, individuals might refrain from over-borrowing.
6. Conclusion

The overall aim of this paper is to establish a convincing argumentation for the integration of behavioural economics concepts in financial education interventions. Further the paper seeks to identify potential methods of including selected concepts, procrastination and mental accounting, into financial education curricula and design. Based on interviews with practitioners, some practical elements were identified to address and counteract psychological and cognitive biases, among others:

- Blinkers, case studies and self-assessment tools to create awareness for psychological and cognitive constraints and to allow training participants to monitor and manage them in financial decision-making processes;
- Commitment tools outside and inside the training sessions to manage self-control problems through commitment tools, such as signature lines and commitment savings boxes;
- Visual mapping and piecemeal planning of activities in order to reduce their perceived costs and promote a discrete mental representation of a project or activity;
- Provision of tools to facilitate comparison of financial products and services, to reduce search- and information costs and thus initiate first steps;
- Provision of certificates, in order to increase salient benefits of the financial education program, to increase completion rates;
- Integration of doing-elements into the training curriculum to initiate first steps and overcome procrastination tendencies;
- Use of terminology based on mental-accounting representation, e.g. referring to borrowing money as ‘spending future income’, in order to package financial key messages;

These suggested elements are however limited to addressing the second transition step in the value chain, the translation of financial knowledge into financial behaviour. Numerous other psychological bottlenecks could affect this step, as well as the first transition step, the smooth transfer of information to knowledge. The list is merely a fraction of potential behavioural economics levers to increase the effectiveness of financial education programs.

Whether these elements, and thus the consideration of behavioural economics concepts into financial education ultimately increase the effectiveness of training programs and interventions, can only be established through a series of rigorously conducted randomized field experiments.

7. List of Interviewees

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<th>#</th>
<th>Name</th>
<th>Title</th>
<th>Organisation</th>
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<tr>
<td>1</td>
<td>Simone Iltgen</td>
<td>Advisor</td>
<td>Competence Centre Financial Systems Development, Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH</td>
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<tr>
<td>2</td>
<td>Olivia Amadhila</td>
<td>Financial Education Trainer, Junior Development Advisor</td>
<td>Financial Literacy Initiative (FLI), Ministry of Finance Namibia and</td>
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<td></td>
<td>Name</td>
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<td>3</td>
<td>Francois Brand</td>
<td>Secretariat Manager</td>
<td>Partnership for Economic Growth (PEG) program of GIZ GmbH, Namibia</td>
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<tr>
<td>4</td>
<td>Christopher Engelhardt</td>
<td>Head: Financial Systems Development Component in Namibia</td>
<td>Partnership for Economic Growth (PEG) program, GIZ GmbH, Namibia</td>
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<tr>
<td>5</td>
<td>Chloe Jacquin</td>
<td>Financial Education Interviewee</td>
<td>PlaNet Finance South Africa (PFSA)</td>
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<td>6</td>
<td>Maud Chalamet</td>
<td>Country Director</td>
<td>PlaNet Finance Brazil (PFB)</td>
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<td>7</td>
<td>Antonique Koning</td>
<td>Financial Sector Specialist, Customers at the Center</td>
<td>Consultative Group to Assist the Poor (CGAP), France</td>
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<td>8</td>
<td>Katy Davis</td>
<td>Vice President</td>
<td>ideas42</td>
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<td>9</td>
<td>Pragnesh Desai</td>
<td>Head: Credit Risk Management and Monitoring</td>
<td>Nedbank Limited, South Africa</td>
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<td>10</td>
<td>Fikile Kuhlase</td>
<td>Senior General Manager</td>
<td>Banking Association South Africa</td>
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<td>11</td>
<td>Dhashni Naidoo</td>
<td>Head: Consumer Empowerment; Policy and Regulation</td>
<td>FinMark Trust</td>
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<td>12</td>
<td>Geraldine Leibbrandt</td>
<td>Executive Director</td>
<td>Free to Grow</td>
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8. List of References


World Bank (2009).


