

Umberto Filotto, Caterina Lucarelli, Francesca Tracò

A Demand-Driven Approach to Financial Education: The WEB Encyclopaedia of Financial Scholars in Italy

(doi: 10.12831/80532)

Journal of Financial Management, Markets and Institutions (ISSN 2282-717X)

Fascicolo 1, gennaio-giugno 2015

Ente di afferenza:

()

Copyright © by Società editrice il Mulino, Bologna. Tutti i diritti sono riservati.
Per altre informazioni si veda <https://www.rivisteweb.it>

Licenza d'uso

Questo articolo è reso disponibile con licenza CC BY NC ND. Per altre informazioni si veda <https://www.rivisteweb.it/>

A Demand-Driven Approach to Financial Education: The WEB Encyclopaedia of Financial Scholars in Italy



Umberto Filotto

University of Tor Vergata, Italy

Caterina Lucarelli

Università Politecnica delle Marche, Italy

Francesca Tracò

Fondazione Rosselli

Abstract

This paper describes a financial education (FE) experiment organized in Italy by the National Association of Scholars on Financial Institutions and Markets (ADEIMF). The international experience of FE programs addressed to children, as well as findings on learning/cognitive attitudes of adults, motivate the choice of a demand-driven approach to FE. From an empirical analysis of FE needs, researchers extracted 15 financial terms and created a corresponding number of FE tools that have been included in an open-access WEB encyclopaedia. Precisely, each word has been explicated by ADEIMF scholars thanks to a homogenous «format», in terms of both video-graphic presentation and length (120 seconds). The format has been designed to comply with the typical time-constraints of adults, as well as to ease/foster their attitude towards knowledge.

The WEB academic encyclopaedia has been disseminated by exploiting a network approach with Italian financial authorities and media. The expected result is an increase of outcomes and efficacy of FE programs in Italy, based on free patterns of knowledge among the academic programs and the other FE tools offered at various levels.

Keywords: Household Saving; Personal Finance; Consumer Protection; Analysis of Education; Educational Finance.

JEL Codes: D14; D18; I21; I22.

1 Introduction

Financial literacy (FL) and financial education (FE) are issues that have raised both theoretical and political debates for nearly two decades, as shown by, among others,

Corresponding author: Umberto Filotto, University of «Tor Vergata» Via Columbia 2, 00133 Rome - Italy
++39.06.72595935, filotto@sefemq.uniroma2.it

We are grateful to Dr. Valentina Caniglia for her valuable contribution offered in collecting data for the empirical analysis carried out in Section 4. Moreover, we acknowledge Banca delle Marche and Fondazione per l'Educazione Finanziaria (previously PattiChiari) for their cooperation in completing our questionnaire among their professionals.

A special thanks goes to Gianni Brighetti, Professor of Psychology at the University of Bologna, for helpful support in understanding cognitive implications of our video-graphic FE tool and the related literature from neuroscience.

Schagen and Lines (1996), Financial Services Authority (1998), Mason and Wilson (2000), Braunstein and Welch (2002), Fox *et al.* (2005), OECD (2005), Mandell and Klein (2009), Atkinson and Messy (2012), Lewis and Messy (2012), and Lusardi *et al.* (2011).

Although scholars and politicians disagree on the final effects of FE programs (see, for example, Peng *et al.*, 2007; Martin, 2007; Bell *et al.*, 2009; Mandell and Klein, 2009; Gale and Levine, 2010), there is general consensus that the gap between the skills needed to take appropriate financial decisions and those actually possessed by the population is so significant that it undermines the freedom of choice of individuals, and thus the efficiency of the market. As a result, several initiatives have been targeted towards the reduction of this gap, starting with the introduction of economics and finance subjects in school curricula.

Teaching economics and finance to children appears to some extent to be mandatory. Although this article focuses on a FE experiment addressed mainly to adults, a preliminary consideration of FE in schools appears necessary. Motivations are twofold: first, investments in FE for schools have attracted interest and resources, worldwide, because they appear to be both more effective, in enhancing individual knowledge and cognitive capabilities, and more rewarding, in terms of long-term expected efficacy, compared with programs aimed at adults. Second, FE programs for children share some difficulties with those aimed at adults. Therefore, a review of the experience collected from FE in schools is necessary to guide large-scale FE programs, to avoid obstacles and prevent pitfalls.

Along these lines, in Italy, an association that gathers a large sample of scholars specializing in finance (namely, ADEIMF, the Italian Association of Scholars of Economics and Management of Financial Institutions and Markets) decided to develop a FE program, addressed mainly to adults, consisting of a WEB academic encyclopaedia collecting multi-media FE products.

A team of scholars from various Italian universities, associated with ADEIMF¹, prepared a qualified but concise description of (initially) 15 financial terms, which could be presented within 120 seconds. The layout of the education product is designed according to a homogenous «format», in terms of both videographic presentation and length, in order to comply with the typical time-constraints of adults, as well as to ease/foster their attitude towards knowledge (see Section 4.2). Financial words for the WEB Encyclopaedia have been selected from 158 technical expressions, after a preliminary analysis of educational needs of a group of potential users.

¹ The team of ADEIMF scholars, actively taking part to this edition, comprises the following: Enrica Bolognesi, Università degli Studi di Udine; Paola Brighi, Università degli Studi di Bologna; Alberto Burchi, Università degli Studi di Perugia; Rosaria Cerrone, Università degli Studi di Salerno; Giuseppina Chesini, Università degli Studi di Verona; Rosa Coccozza, Università degli Studi di Napoli «Federico II»; Alberto Dreassi, Università degli Studi di Udine; Federica Ielasi, Università degli Studi di Firenze; Giuseppe Lombardo, Università degli Studi di Genova; Antonella Malinconico, Università degli Studi del Sannio di Benevento; Duccio Martelli, Università degli Studi di Perugia; Maria Mazzuca, Università della Calabria; Federica Miglietta, Università degli Studi di Bari Aldo Moro; Claudio Porzio, Università degli Studi di Napoli «Parthenope»; Francesca Querci, Università degli Studi di Genova; Giuseppe Guglielmo Santorsola, Università degli Studi di Napoli «Parthenope»; Maria Grazia Starita, Università degli Studi di Napoli «Parthenope»; Stefania Sylos Labini, Università degli Studi di Foggia; Andrea Uselli, Università degli Studi Insubria Varese-Como.

The reading of the text, made by the ADEIMF scholars, has been synchronized with a videographic support, thus generating the FE tool. The final result is a WEB open-access tool, accessible via YouTube from the ADEIMF website². This experiment relies on an ideal networking between the demand and supply side of FE, exploiting web connections among Italian universities, financial authorities/associations, media, and final users of educational programs.

The rest of this article is organized into four sections: in Section 2 we review theoretical and political issues related to FE taught to children; in Section 3 we discuss the FE approach to adults. Section 4 describes the methodology of the ADEIMF FE program. Section 5 concludes.

2 FE Taught to Children

The first major issue, besides *what* and *how much* economics have to be taught, is *how* economics should be taught. If we refer to children, it is clear that the main issue is adopting the appropriate pedagogical approach to economics teaching. Several studies have investigated the development of learning skills in children, although only a few of them refer specifically to economics learning (Berti and Bombi, 1988; Berti and Monaci, 1998; Webley, 2005). Empirical evidence indicates not only that the *quantity* of economic teaching to children should be well balanced, but, more specifically, that the *type of concepts* that children can usefully and actually learn should be addressed. This content is different and changes with time, age being the first and most important driver of variation.

Moreover, learning capacities and will to learn are strongly related to the pupil's overall familial, cultural and social environment. As an example, the pace of learning is likely to accelerate if the child is living in a stimuli-rich environment that challenges her/him, and that demands solution of problems with an economic dimension. This confirms, not surprisingly, that there is a strong correlation between what happens inside and outside the classroom. Curricula must therefore be contingent, that is, adapted to the context, which means that there is no such a thing as «the perfect» mix of notions, but also that leveraging on everyday life makes programs more useful and increases their impact and effects. This is also because learning is not simply the acquiring of technical skills: the bricks we use to build our knowledge are made up of solid notions, but the clay they are made of is tinted in a variegated palette of colours.

Implications of this idea are that the educational pattern should start from the students' daily lives and from the environment in which they live. Learners should have the opportunity to experience situations they are likely to face in the future. As suggested from Vygotskij's (1978) zone of proximal development (ZPD), it is necessary to begin from those competences that the student already possesses, and then to let the student faces situations in which he or she has to apply competences that are slightly more advanced than those possessed. This does nothing more than confirm the role and the importance of the experience of practical learning (see Dewey, 1938). Practice is necessary not only

² <http://www.adeimf.it/attivita/educazione-finanziaria.html>; <http://www.adeimf.it/multimedia/video.html>.

to learn effectively but also to implement and put into action what has been learnt. Most of all, while knowledge and notions might not be translated into actions, or into appropriate decisions, experience is what really modifies behaviours. At this point a very quick reference has to be made to the discrepancy between having «correct» knowledge and doing the «right things».

2.1 Appropriate Knowledge Versus Appropriate Behaviours

The issue is well known and falls within the scope of studies in behavioural finance. Cognitive distortions in economic choices have been the subject of intense research for more than two decades, starting from Kahneman and Tversky (1979, 1981), Kahneman *et al.* (1982), and Viale (2005). In the last decade, the approach has been adopted in studies regarding decisions not only on investing but also on borrowing, on retirement and also on FE programs.

While the behavioural perspective broadens the horizons of economics as it considers decision drivers which were improperly neglected in classical economic theories, at an extreme interpretation, behavioural studies reach to deny both the usefulness of FE programs and the importance of good levels of financial literacy (see Legrenzi, 2011). This position assumes that since individuals are victims of their cognitive biases (e.g., herding, framing, anchoring), they might be capable of elaborating correct decisions, but might be incapable of changing their effective behaviours. In this perspective, teaching economics is argued to be a waste of money, as notions will remain unused. The unique solution for a fair market would be a paternalistic approach, whereby regulation constrains behaviours to a limited set of admissible activities.

This extreme behaviourist criticism can be mediated, in FE programs, by introducing the concept of *experiential learning* (Kolb *et al.*, 2001): it does not avoid mistakes but, simply put, makes them evident. If you are put in front of choices, in a realistic situation you will very likely behave the way you would in real life: this allows for the identifying of biases and their intensity and suggests areas where teaching is more or less effective. For example, is risk sensitivity asymmetrical, as gains are less «important» than losses? This can be tested thanks to experiential learning; results can be used to decide whether focussed education can either compensate for this bias or whether no remediation is possible. In the latter case, the implementation of stricter regulations limiting individual investment choices could be a more efficient alternative than insisting on investing in education.

3 FE Taught to Adults

Experiential learning is gaining importance because learning patterns and habits are increasingly experimental and game-based; this is true for children, but it is becoming noteworthy for adults. The shift of experiential learning towards grown-ups is justified for several reasons.

First, once they are out of school, individuals are not prone to traditional learning: staying for long hours in classrooms listening to frontal teaching is neither feasible nor acceptable. It is a common sense, as an example, that trying to get adults to attend FE classes succeeded only with retired citizens looking for stimulating ways to use their abundant free time. People of working age would never prefer attending in their leisure time a FE class when the alternative is watching a movie or a football match, going to the gym or shopping.

Second, adults face severe time constraints, and their attention span tends to become very short. The only chance to convey FE to adults is to make relevant information available *when* and *where* financial decisions are made, and in a way which is compatible with the very little time and attention generally reserved for a subject which is certainly a «must have» but not a «want to have». Experience in this field has proved the effectiveness of decision-supporting tools; while helping individuals make good choices they also help increase the financial literacy of the adult population (see Filotto, 2009, Filotto and Nicolini, 2010)³. Simulators, which help people make choices in their everyday lives, can be effective teaching tools. The reason is that teaching methods must abide by principles of ergonomics (see Caratelli *et al.*, 2009); experiential learning is thus the rule in the case of adults facing FE problems.

Finally, adults' cognitive approach to knowledge could be different from that of school-age children. Any FE tools addressed to adults should be accessible whenever necessary, should be available *when* and *where* financial decisions are taken, and should optimize the adults' level of attention (low) to focused financial concepts.

4 Methodology and Data of the ADEIMF FE Program

The FE program conducted by ADEIMF has been organized into three main phases. First, given the experimental approach and the funding self-supported by the Association, an empirical analysis of the demand side was conducted to select the initial 15 financial terms/technical notions necessary for the start-up of the WEB Encyclopaedia (year 2013).

Second, the ADEIMF managing board organized a call for videos, requesting that its members, financial scholars at Italian universities, take part in the project. The resulting participants, representing more than 20 Italian universities, were invited to cooperate with the Encyclopaedia production (year 2014). An homogenous multi-media «format» was created and employed to produce the 15 FE tools.

The conclusive step is the organization of the web connections with the different players offering various FE programs/tools in Italy (year 2015).

³ It is unlikely that somebody would decide to study out of the blue the meaning of, say, 'variable versus fixed rates'; however, when you are considering taking out a mortgage you will certainly have a strong and immediate incentive to learn. Studying different types of bonds or volatility and duration is definitely less exciting than watching the final match of the Champions Cup.

4.1 Empirical Analysis of FE Needs

The empirical analysis was conducted in 2013 to select the initial 15 financial terms. The reason for promoting a demand analysis is that scholars, and sometimes also professionals, could be biased by their own interests and profession and thus are likely not fully aware of the real knowledge needs of the larger population.

Therefore, we prepared a short questionnaire, described in Appendix 1, where we included a list of 158 terms, obtained and adapted from a sample of Italian dictionaries of financial words⁴ (the list of terms is offered in Appendix 2). These terms cover various areas of finance, and we paid attention to balancing words belonging to a macro (31%), micro (42%) or retail (27%) environment. We included financial terms related to macro- economic issues (e.g. Rating agency; Net assets; Investment Bank; Base Money; Basel 2; European Central Bank); micro-issues (Spot rates, Forward rates, ABS- Asset Backed Securities, Arbitrage, Asset Allocation, Saving share, Nominative share, Preference share), and, finally, words that are likely used by retail financial customers (e.g. Check, Bank transfer, Credit Card, Debit Card, Euribor, Mutual Fund, Pension Fund, Wealth Management).

4.1.1 The Sample

We submitted the questionnaire to three subgroups of individuals: a random sample of potentials «users» of FE programs, a sample of financial professionals committed to the FE⁵, and a sample of financial scholars⁶. Ultimately, we received responses from 160 individuals belonging to these three categories. Further socio-demographic features of the sample are described in Table 1.

Being aware that only the «users» sample is large enough to deserve further statistical analysis, we nevertheless believe that responses offered by both financial professionals and scholars are informative as well, as they come from individuals seriously committed to the analysis. For example, the variety of age and gender (50% males and 50% females) of the scholars allows us to assume that their ‘average’ scoring of the list of 158 words is not essentially different from the belief of the national community of university professors and researchers in finance. The unique notation is an over-representation of the female component in the sample; nevertheless, this is consistent at least in users and scholar sub-samples, maybe due to a less favourable attitude of males toward participating in surveys.

⁴ We collected information from the following: Glossary of Bank of Italy; Glossary of Italian Stock Exchange; Glossary of Il Sole 24 Ore; Glossary of Trend-Online; Glossary of Yahoo.Finance; Glossary of Finanza Online; other minor glossaries such as Fibonacci, Studio Maggiolo.

⁵ Here we invited a sample of employees of Banca delle Marche (Marketing and Education staff) and of Fondazione per l'Educazione Finanziaria (previous PattiChiari).

⁶ We submitted the questionnaire to members of the ADEIMF managing board.

Table 1: Socio-demographic feature of the sample

Gender	Freq.	Percent		Freq.	Percent
Males	61	38.13	Over_40	93	58.13
Females	99	61.88	Under_40	67	41.88
Total	160	100	Total	160	100

	Obs	Mean	Std. Dev.	Min	Max
Age	160	44.3	12.2	19	75

Education	Freq.	Percent	Profession	Freq.	Percent
Primary School	5	3.1	Employee	44	27.3
Secondary School	16	10.0	Manual Worker	22	13.6
High School	68	42.5	Teacher	25	15.4
Bachelor	7	4.4	Manager	27	16.8
University Degree	50	31.3	Entrepreneur	4	2.5
Post Degree	14	8.8	Professionals (in finance)	10	6.2
Total	160	100	Scholars (in finance)	10	6.2
			Other	18	12.0
			Total	160	100

4.1.2 FE Priorities: Demand and Supply Side of the Market

In Appendix 2 we offer results for the average score assigned to each term in relation to the perception of importance for a FE program. Respondents were asked to give a score, within the 1-4 range, if they thought the FE, on that term, was really important (score of 4), important (score of 3), quite important (score of 2), or not very important (score of 1).

In Table 2, we offer some statistics for the three sub-samples (being aware of the limited meaning of the results of the professionals and scholars). A certain number of the users sub-sample totally ignores some of the terms that were proposed to them. (Appendix 2 offers the precise number of NR – non respondents – for each word). Of the 158 terms, an average of almost 67 terms were declared to be totally unknown, with a median value of 76, and a range of 5 to 94.

Overall, Table 2 shows that, on average, the mean score assigned by users (2.4) is lower than the mean score expressed by professionals (2.42), and far lower than the score assigned by scholars (2.93). This would seem to be coherent with the idea that scholars tend to overestimate the need for FE compared with the real need that users seem to perceive. This result is consistent if we consider the «Max priority» variable. It is remarkable that the percentage of terms for which FE is «really important» for financial professionals (20%) is half that for financial scholars (40%).

Table 3 indicates the mean score for perception of FE relevance, by sub-sample of individuals and sub-groups of typology of financial terms: macro, micro and retail terms. Potential users tend to privilege the request for FE in favour of terms that they practically may employ in everyday life. This is absolutely obvious and expected. Surprisingly, the mean score for more «theoretical» terms (macro and micro terms) is lower when assigned by professional than by users. Members of the general public tend to be more «curious» than financial professionals about financial issues.

In order to find further evidence of likely differences of perception for FE relevance, between the demand and supply side of the market, we first observed responses given

Table 2: Ignored terms, mean scores and priority scores from the questionnaire

	Obs	Mean	Median	Std. Dev.	Min	Max
Ignored Term (users sub-sample)	158	66.8	76	21.9	5	94
Mean score for users	158	2.4	2.4	0.2	1.8	2.9
Mean score for professionals	158	2.42	2.375	0.4	1.5	3.1
Mean score for scholars	158	2.93	3.0	0.6	1.1	4
Max priority users	158	23.9%	22.8%	8.3	4.7%	47.9%
Max priority professionals	158	19.5%	20.0%	15.3	0.0%	50.0%
Max priority scholars	158	39.9%	40.0%	26.9	0.0%	100.0%

Note: This table shows overall statistics of scores declared by responding individuals. The *Ignored Term* variable accounts for the number of missing values in responses of individuals: they do not respond because the word is completely unknown. Statistics for the Ignored Term variable uniquely refers to the sub-sample of users and substantially refers to the NR column of Appendix 2. The *Mean score* variable indicates the average score (within the 1-4 range) received within each of the three sub-samples (users, professionals and scholars). The *Max priority* variables indicate the percentage of individuals who assigned the maximum score (4) to the terms submitted, by sub-sample. These latter two variables are computed excluding the missing responses.

Table 3: Mean score by category of financial term

Variable	Macro-terms		Micro-terms		Retail-Terms	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Mean score for users	2.27	0.62	2.29	0.62	2.54	0.85
Mean score for professionals	2.09	0.68	2.27	0.84	2.33	1.21
Mean score for scholars	2.41	0.36	3.00	0.30	3.49	0.21

by users (demand side) for three extreme situations, then we considered the level of importance assigned by those belonging to the supply side, i.e. professionals and scholars. Extreme situations are described by three dichotomised variables that split our terms between *i*) those that are highly ignored by users, that is, those for which there was a higher number of non-respondents than the median value of the sample; *ii*) those assigned a mean score higher than the median score registered in the sample, i.e. «high need» terms; and *iii*) those assigned the (max) score (4) for a percentage of individuals higher than the median value of the sample. These three dummy variables work as cut-off used to compute average score values assigned by professionals and scholars, to each category (e.g. terms highly ignored by users) vs. the complementary alternative (e.g. terms not ignored by users). Table 4 lists results of t-test comparison of mean scores obtained based on this procedure.

For example, as far as terms highly ignored by users, the average score of educational importance assigned by professionals is 2.27, which is statistically significantly lower than the average (2.55) assigned to complementary terms, that is, those that users tend to know. This difference is consistent when observing responses of scholars, who assigned an importance to unknown terms (2.73) significantly lower than that assigned (3.10) to the other terms.

The direction of the difference switches when considering terms with high need and priority of education: both professionals and scholars assigned an average score to terms identified by users as strongly important that was significantly higher than the score assigned to terms that users identified as less important.

These findings indicate, first, that the overestimation of educational need shown by scholars, on average scores assigned to all the terms, is misleading, because there seems

Table 4: Two-sample t-test with equal variances

Group:	Obs	Scores assigned by professionals			Scores assigned by scholars		
		Mean	Std.err.	Std.dev.	Mean	Std.err.	Std.dev.
Terms highly ignored (by users)	73	2.27	0.04	0.34	2.73	0.07	0.63
(vs complementary alternative)	85	2.55	0.04	0.32	3.10	0.07	0.62
		$t = 5.3407$			$t = 3.7059$		
			***			***	
Terms with high need (from users)	77	2.58	0.04	0.31	3.19	0.07	0.61
(vs complementary alternative)	81	2.27	0.04	0.33	2.69	0.07	0.60
		$t = -6.0028$			$t = -5.2032$		
			***			***	
Terms with priority (from users)	80	2.59	0.03	0.31	3.18	0.07	0.65
(vs complementary alternative)	78	2.25	0.04	0.33	2.68	0.06	0.54
		$t = -6.6606$			$t = -5.2139$		
			***			***	

*** stands when differences are statically significant at 5%.

to be a large coherence of perception of what has to be taught. Professionals and scholars are aware that some terms are very specific and that potential users may totally ignore them without suffering any inconvenience. For this reason they assign to these terms a significantly lower priority. Second, when considering terms that users perceive as very important targets of FE programs, professionals and scholars statistically increased the score they assigned to the importance of that education.

Briefly, this shows that the supply side of FE seems to have an appropriate view of the main issues for FE, and would appear able to understand the educational needs of the demand side of the financial market.

4.1.3 FE needs: is there an issue of awareness?

Socio-demographic information for our sample of potential users, as well as evidence of their financial consumption style, allows us to explore common features of those showing a peculiar request for FE. Therefore, we created a dummy variable (FE-NEED) with a value of 1 if respondents expressed an educational need higher than the mean value of the entire sub-sample of users. Precisely, FE-NEED takes a value of 1 for those potential users showing an average score, assigned to the proposed 158 terms, higher than the average of the whole sample; 0 otherwise. The probability of holding a relevant FE need ($FE-NEED = 1$) is explained by a set of explanatory variables as follows:

$$(1) \quad Pr(FE-NEED = 1 | \text{Gender, Under40, Education, Profession, Nbankprod})$$

The Profession variable works as a matrix that embraces four typologies of profession: Employee, Manual-Worker, Teacher, and Manager or Entrepreneur (Man-Entrep).

Table 5 shows results of a probit regression reporting marginal effects. Estimations of model (1) refer to robust standard errors and offer evidence that a peculiar need of financial education is declared by females and by individuals with a higher level of school education.

The significance and sign of the explanatory variables indicate that respondents who are female and who have a high level of school education are more likely to score FE as

Table 5: Probit regression reporting marginal effects

Depended variable: dummy variable FE_NEED			
	dF/dx	$P > z$	Robust Std. Err.
Gender	0.208	*	0.116
Under40 [^]	-0.269	**	0.099
Education	0.152	***	0.047
Employee [^]	0.076		0.173
Manual-Worker [^]	-0.442	**	0.095
Teacher [^]	-0.166		0.170
Man-Entrep [^]	-0.088		0.178
Nbankprod	-0.056	*	0.034

Number of obs: 136

Wald chi²(8) : 37.08Prob > chi² : 0.0000Pseudo R² : 0.2578

Log pseudolikelihood: -69.428231

(^) dF/dx is for discrete change of dummy variable from 0 to 1 $P > |z|$ corresponds to the test of the underlying coefficient being 0; asterisks ***, **, * stand for values less than .01, .05 and .1 respectively.

highly important; less likely to score FE as highly important are respondents under 40 who are manual workers and who hold a high number of banking products. This latter result appears reasonable because people who tend to have experience with large numbers of financial services (e.g., current accounts, credit cards, mortgages, securities portfolios) could have obtained an experiential FE. Nevertheless, an endogeneity issue could also exist: perhaps higher financial activity increases levels of FE, or financially educated individuals ask for larger numbers of financial products.

The remaining results raise the issue of *awareness* of FE need. Let's keep in mind that the dependent variable (FE-NEED) does not technically indicate the *effective need* for FE, but merely the *perception* of this need. Respondents basically *declared* that they would believe it important to receive a FE program on the proposed set of financial terms. We argue that an underlying driver of (self-)confidence could lead some individuals either to perceive the presence of this to be important or to discard it. This interpretation is supported by the role of gender, coherent with the well-established male over-confidence in finance (Barber and Odean, 2001).

4.2 The FE Tool: Justification for the «Format» from Neuroscience

In the creation of the FE tool, the videographic «format» has been conceived to foster cognitive processes that are generally associated with the enhancement of human attention toward a stimulus. From neuroscience, «attention can be defined as the selective enhancement of visual processing in a region of the visual field», and «eye movements constitute *overt* allocation of attention» (Lovejoy, Fowler, and Krauzlis, 2009, p. 1275). Nevertheless, humans are able to engage a *covert* allocation of attention, as they can «selectively enhance visual processing of a region of the visual field without an accompanying eye movement» (Lovejoy, Fowler, Krauzlis, 2009, p. 1275). Human atten-

proto-objects, thus maximizing efficacy of the vision of and, finally, of attention to/comprehension of its content.

4.2.1 Ergonomy of the FE Tool

The offer of a FE tool aimed at adults should comply with ergonomics (see Caratelli *et al.*, 2009). Aside from issues related to cognitive efficacy, described in the previous section, ergonomics would imply that the FE tool, first, should be accessible *whenever* the individual perceives the presence of an educational/informational need and, second, should maximize her/his *availability of time*.

The open access of the WEB Encyclopedia, collecting the video-graphic presentations of financial terms, guarantees the user-friendliness and full availability of the FE tool. The presence of the ADEIMF FE tools on YouTube channels also exploits accessibility via smart phone and tablets, thus supporting the availability of the educational tool anywhere and at any time.

The availability of time that adults may dedicate to educational/informative tasks often suffers from the presence of both *objective* and *subjective* constraints. In Section 3, we referred to objective time constraints (e.g., concurring tasks, such as work and family duties). Here, we add issues related to subjective constraints and refer to a general «attention-time relation». As shown in Figure 2, attention span tends to be short, and attention levels sharply decrease as the length of a presentation increases.

Recent studies (Lenartowicz *et al.*, 2013) slightly update this basic idea of temporal variations in attention control. In fact, attention does not uniquely depend on the «time duration» of a presentation but is simultaneously influenced by the intrinsic motivation of the observer, or also by any further device the presentation is able to use to refresh the attention level to an initial position. According to this view, the animation process of the format, which replaces one scene after another, can be considered one of the suggested devices, and it can stimulate the continuous activation of human attention trajectories, as indicated in the previous section.

Nevertheless, researchers opted for a concise presentation, one that addresses both objective and subjective time constraints. An homogenous and short duration of the FE tools has been preferred: each video, synchronized with the oral presentation by ADEIMF scholar, is organized based on a 120-second time frame.

4.3 The FE Program Networking

Because FE programs are plentiful in Italy (see Fondazione Rosselli – Consorzio Patti Chiari, 2013), and given that a coordinated strategy is certainly missing, the ADEIMF project was designed not to compete with existing initiatives but to foster synergies within the academic community and to create a network with entities and institutions offering FE programs. While writing this paper, we are currently in the process of offering to all interested and qualified parties the opportunity to link to our Encyclopaedia from their websites. Indeed, the reason for different organizations (e.g., regulators, banks, consumer

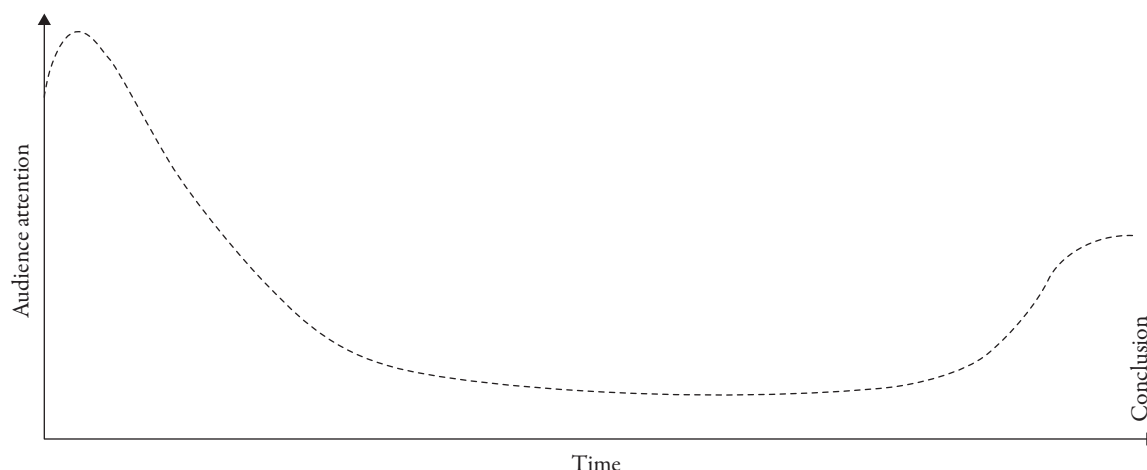


Figure 2: The Attention-Time Relation.

Source: European Federation of Catalysis Societies (2008).

associations) to promote the ADEIMF Encyclopaedia is that it is a highly qualified product, in terms of both reliability of content and methodological/communicational approach. Also, being a purely academic and self-promoted initiative, it is not only cost efficient but also credible and fully accountable.

It is evident that what is absolutely necessary to making FE initiatives more effective is a comprehensive strategy that, while ensuring the possibility for different subjects to promote their projects, could avoid overlapping programs, thus guaranteeing an efficient allocation of resources. From this perspective this program participated in the national monitoring of FE initiatives launched in 2015.

5 Implications of FE and Final Remarks

Much has been said and written on FE, on the fact that it is a necessity, but also on the possibility that it could be insufficient to solve the problem of people's inability to make appropriate personal financial plans.

It is indeed clear that the complexity of the financial environment has increased greatly, severely undermining people's ability to make sound, rational choices. We have duly reported the opinion of those who consider FE to be an illusion that has no real impact on the behaviours of individuals. Should this position be correct, there is no alternative to pervasive regulation that would severely restrict not only the freedom of financial intermediaries but also the options and choices of individuals. Although we believe material welfare is a priority, we also think that freedom of choice is a right long fought for, that should be preserved and possibly enhanced.

We acknowledge the limitations of FE, but we hypothesize that some of the drawbacks are due to improper methodologies and not to the ineffectiveness of education *per se*. This is why, in running the ADEIMF project, we adopted a different approach both to selecting the topics that should be taught and to determining how they should be taught.

The reason why we invested in a video encyclopaedia is that we are convinced that the adoption of visual formats, using time-efficient solutions, is mandatory in the case of adults, and it is also becoming more and more appropriate when children are concerned. Although children are more prone to learning «the good ol' way» compared with adults, we are facing a profound change in the way people learn. Oral teaching, as well as oral storytelling, are losing ground. Three and a half millennia years after the Tables of the Law (i.e., writing) prevailed over the Golden Ram (i.e., icons), images, pictures and, yes, gaming and direct experience, are becoming the way by which children access information and knowledge and actually relate to the «real» world. Exposure to multiple sources of information, the possibility of being connected with almost everybody anywhere, has crumbled the classrooms walls: the learning place is not somewhere apart, it is everywhere, and moreover has to be closely connected with everyday life. There is a growing and firm belief that the development of knowledge is not segregated from reality; thus, the real world (or a simulation of it) has become the preferred teacher.

Nevertheless, the issue is not only the evolution of teaching methods; when we «talk finance», gaming, experience and adopting formats which are close to everyday life have proved to be the most effective way to develop not only notions and knowledge but also skills that enable people to make sound financial decisions. This is always true, but it is particularly relevant from the perspective of financial inclusion, which means creating the necessary conditions (economic, legal, technological) to allow people to access basic, though complete, financial products and services. The evidence is clear that individuals experimenting and using financial services develop skills that reflect on their future economic welfare (see Ashby *et al.*, 2001; Erlukar and Chong, 2005; Chowa and Ansong, 2010; Friedline *et al.*, 2011). It is easy to understand that people who not only have taken classes in basic banking but who have also used basic banking products will «perform» better than those who possess theoretical knowledge only; what is less immediate to understand is that financial inclusion programs have effects that largely transcend economic life: evidence shows that people «financially included» tend to attain higher welfare levels not only economically but in most spheres of life, including health (see Ssewamala *et al.*, 2009) academic achievements (see Elliott *et al.* 2010), educational performance (see Elliott and Beverly , 2011) and ultimately social position. This simply means that attracting previously excluded people into the area of what could be labelled the official economy has the effect of making them full-fledged members of society.

This justifies or, better, creates the urgency for effective FE programs. However, resources are scarce and they should be efficiently allocated. Adopting a bottom-up approach that starts from what people need and not from what is generally considered appropriate, adopting formats that are as user-friendly as possible, and trying to leverage on all the interconnections which are already present in a complex and mature society is, in our understanding, the only reasonable approach. This is the conceptual and actual framework of the ADEIMF Visual Encyclopaedia. In the first semester of 2015 the initial 15 terms have been released, and the next step will be to monitor the impact and effectiveness of the approach; this will enable us to fine-tune the project and, as long as it proves (as we hope) effective, to expand it both in the number of terms that

will be made available to users and in the accessibility for consumers as well as to other promoters of FE initiatives.

Education concerning financial matters, which are tightly intermingled with everyday life, should be fine-tuned according to specific needs, in line with learning capacities and coherent with the cultural environment surrounding the learner. Thus, FE has to be a bottom-up process. This contributes to the perspective of citizenship and, to some extent, of a democratic approach when it comes to defining the basic and indispensable competences that any human being living in a community should possess.

Appendix 1: Layout of the Questionnaire to Investigate FE Needs

Within a national project of Financial Education (FE), organized by the Italian Association of Scholars of Financial Institutions and Markets, we kindly ask your participation in order to understand the main perceptions and need in relation to a list of financial terms. Given this list, would you please indicate the degree of importance that you assign in receiving a specific program of FE? For which terms would you appreciate some FE?

Please, indicate the degree of importance assigning to each term a score within the 1-4 range:

score = 4: FE really important
 score = 3: FE important
 score = 2: FE quite important
 score = 1: FE not very important

List of Financial Terms (as shown in Table 1)	Score (within the 1-4 range)
...	...

The list of 158 terms is obtained and adapted from the following Dictionaries of financial words:

- Glossary of Bank of Italy
- Glossary of Italian Stock Exchange
- Glossary of Il Sole 24 Ore
- Glossary of Trend-Online
- Glossary of Yahoo.Finance
- Glossary of Finanza Online
- Other minor glossaries as Fibonacci, Studio Maggiolo

Please also fill out this section to provide some socio-demographic information.

Gender:
 Age:
 Education:
 Profession:
 Number of banking services regularly used:

Appendix 2: Score Obtained by Financial Term, by Subsample of Users, Scholars and Professionals

Variable	Users (140)					Scholars (10)				Professionals (10)			
	NR	Mean	Std.	Min	Max	Mean	Std.	Min	Max	Mean	Std.	Min	Max
Spot Rates	77	2.3	1.1	1	4	2.6	0.7	2	4	1.8	0.9	1	3
Forward Rates	77	2.3	1.1	1	4	2.6	0.7	2	4	1.7	0.9	1	3
ABS - Asset Backed													
Securities	77	2.4	1.2	1	4	2.9	1.0	1	4	1.9	0.8	1	3
Amortization	32	2.5	1.1	1	4	3.0	1.1	1	4	3.0	1.2	1	4
Rating Agency	57	2.6	1.2	1	4	3.7	0.5	3	4	2.9	1.2	1	4
Arbitrage	76	2.1	1.0	1	4	2.4	1.1	1	4	2.3	0.9	1	4
Check	5	2.8	1.2	1	4	3.7	0.5	3	4	2.7	1.3	1	4
Asset Allocation	85	2.1	1.3	1	4	2.7	0.9	1	4	2.8	1.0	1	4
Net Assets	79	2.0	1.1	1	4	1.1	0.3	1	2	2.2	1.0	1	4
Saving Share	46	2.8	1.1	1	4	3.1	0.7	2	4	2.6	1.2	1	4
Nominative Share	68	2.3	1.1	1	4	2.6	1.1	1	4	2.2	1.2	1	4
Voting Shares	66	2.4	1.1	1	4	3.4	0.8	2	4	2.4	1.1	1	4
Preference Share	70	2.4	1.1	1	4	2.7	1.2	1	4	2.2	1.2	1	4
Listed Stocks	60	2.5	1.0	1	4	3.0	0.7	2	4	2.6	1.2	1	4
Investment Bank	45	2.4	1.1	1	4	2.5	0.7	2	4	2.1	1.1	1	4
Base Money	68	2.4	1.1	1	4	1.6	0.5	1	2	2.8	1.1	1	4
Basel 2	78	2.4	1.1	1	4	3.3	0.7	2	4	2.6	0.9	1	4
European Central Bank	31	2.8	1.2	1	4	3.3	0.9	1	4	3.0	1.1	1	4
European Investment													
Bank	66	2.7	1.2	1	4	2.1	0.7	1	3	2.6	1.1	1	4
Benchmark	86	2.4	1.1	1	4	3.0	0.7	2	4	2.2	1.0	1	3
Safe Haven Asset	72	2.6	1.2	1	4	1.3	0.7	1	3	2.0	0.8	1	3
Balance of Trade	71	2.4	1.1	1	4	1.7	0.8	1	3	2.2	1.1	1	4
Balance of Payment	70	2.4	1.1	1	4	1.9	1.0	1	3	2.2	0.8	1	3
Balance Sheet	58	2.6	1.1	1	4	3.0	1.2	1	4	2.7	1.3	1	4
Blue Chip	85	2.0	1.0	1	4	2.5	0.5	2	3	1.7	0.5	1	2
Stock Market Bubble	76	2.4	1.1	1	4	2.8	1.3	1	4	2.9	1.2	1	4
Bank Transfer	10	2.7	1.3	1	4	3.6	0.7	2	4	2.6	1.2	1	4
Stock Exchange	32	2.5	1.2	1	4	3.5	1.0	1	4	2.2	0.9	1	3
Short Term Treasury													
Bills	14	2.7	1.2	1	4	3.7	0.5	3	4	2.9	1.2	1	4
Broker	64	2.2	1.1	1	4	3.1	0.7	2	4	2.3	1.1	1	4
Long Term Treasury													
Notes	43	2.7	1.1	1	4	3.6	0.5	3	4	2.8	1.1	1	4
(German) Bund	61	2.4	1.1	1	4	3.2	0.8	2	4	2.8	0.7	2	4
Fixed Exchange Rate	56	2.3	1.2	1	4	2.7	1.2	1	4	1.9	0.6	1	3
Cap	73	2.2	1.1	1	4	2.9	0.9	1	4	2.3	1.0	1	4
Equity	51	2.4	1.1	1	4	2.0	0.9	1	4	2.3	0.9	1	3
Market Capitalization	57	2.5	1.1	1	4	2.4	0.8	1	4	2.7	1.1	1	4
Commercial Paper	85	2.3	1.1	1	4	2.6	1.3	1	4	1.5	0.8	1	3
Credit Card	5	2.8	1.2	1	4	3.5	0.8	2	4	2.4	1.2	1	4
Debit Card	65	2.5	1.2	1	4	3.5	0.8	2	4	2.3	1.2	1	4
Prepaid Card	14	2.5	1.3	1	4	3.4	0.8	2	4	2.3	1.2	1	4
Securitization	84	2.3	1.1	1	4	3.1	0.9	1	4	2.0	0.8	1	3
Cassa Depositi E Pres-													
titi Spa	50	2.2	1.0	1	4	2.9	1.1	1	4	2.0	1.1	1	4
Coupon	42	2.3	1.2	1	4	3.7	0.5	3	4	2.3	1.0	1	4
Central Credit Register	72	2.2	1.1	1	4	3.0	0.7	2	4	2.8	0.8	1	4
Certificates	71	2.0	1.1	1	4	3.0	1.1	1	4	2.1	0.9	1	3
Discounted Treasury													
Certificates	75	2.3	1.1	1	4	2.6	1.3	1	4	2.3	0.9	1	4
Option Treasury Cer-													
tificates	79	2.3	1.0	1	4	2.6	1.3	1	4	2.1	0.9	1	4
Zero Coupon	80	2.1	1.0	1	4	3.0	1.4	1	4	2.1	1.1	1	4
Class Action	80	2.4	1.3	1	4	1.9	1.1	1	4	2.6	1.3	1	4
Management Fee	69	2.2	1.1	1	4	2.8	1.1	1	4	2.2	1.2	1	4
Performance Fee	79	2.2	1.1	1	4	2.8	1.1	1	4	2.3	1.3	1	4
Commodity-ies	90	2.1	1.1	1	4	2.1	0.9	1	3	2.4	1.5	1	4
Corporate Bond	84	2.3	1.0	1	4	3.3	0.9	1	4	2.7	1.1	1	4
Covered Bond	87	2.3	1.0	1	4	3.1	0.7	2	4	2.4	1.0	1	4

Covered Warrant	87	2.2	1.1	1	4	3.2	0.6	2	4	2.3	0.5	2	3
Credit Default Swap	89	2.5	1.2	1	4	3.1	0.7	2	4	2.3	0.8	1	3
Bad Loans	77	2.4	1.2	1	4	2.9	1.0	1	4	2.6	1.2	1	4
Yield Curves	76	2.6	1.2	1	4	3.5	0.7	2	4	2.3	0.9	1	4
Public Debt	21	2.9	1.2	1	4	3.5	1.1	1	4	2.9	1.3	1	4
Deflation	71	2.5	1.1	1	4	2.9	0.9	2	4	2.1	0.9	1	3
Bank Deposit	32	2.5	1.1	1	4	3.4	1.0	1	4	2.6	1.2	1	4
Derivatives	65	2.6	1.2	1	4	4.0	0.0	4	4	2.8	1.0	1	4
Bid Ask Spread	89	2.2	1.1	1	4	2.4	0.7	1	3	2.2	1.0	1	4
Dividend Yield	61	2.4	1.2	1	4	3.7	0.5	3	4	2.4	1.1	1	4
Duration	89	2.0	1.0	1	4	3.4	0.7	2	4	2.5	1.2	1	4
Exchange Traded													
Funds-ETF	92	2.1	1.1	1	4	3.5	0.5	3	4	2.1	1.2	1	4
Euribor	70	2.6	1.2	1	4	3.8	0.4	3	4	3.0	1.2	1	4
Fair Value	89	2.0	1.0	1	4	2.9	1.1	1	4	1.6	0.5	1	2
FED	84	2.1	1.1	1	4	2.8	1.2	1	4	2.0	0.8	1	3
Fiscal Compact	84	2.4	1.1	1	4	2.2	0.9	1	4	2.0	0.9	1	3
Cash Flow	76	2.3	1.1	1	4	2.2	0.9	1	4	2.3	0.9	1	3
International Monetary													
Fund	55	2.7	1.2	1	4	2.9	1.0	1	4	2.1	1.1	1	4
Bank Foundations	68	2.2	1.1	1	4	2.4	0.7	1	3	2.1	0.8	1	3
Mutual Fund	54	2.5	1.1	1	4	3.9	0.3	3	4	3.0	1.1	1	4
Pension Fund	11	2.9	1.1	1	4	4.0	0.0	4	4	3.1	1.0	1	4
Future	82	2.6	1.2	1	4	3.7	0.5	3	4	2.8	1.4	1	4
Wealth Management	56	2.7	1.1	1	4	3.7	0.5	3	4	2.9	1.2	1	4
Capital Gain	77	2.4	1.1	1	4	3.5	0.8	2	4	2.4	1.1	1	4
Hedge Fund	94	2.3	1.1	1	4	3.4	0.5	3	4	2.1	0.4	2	3
Stock Market Index	76	1.8	0.9	1	4	2.6	1.2	1	4	2.0	1.2	1	4
Interest Rate Cap	88	2.3	1.0	1	4	2.0	0.7	1	3	2.0	0.6	1	3
Interest Rate Swap	88	2.3	1.0	1	4	3.0	0.7	2	4	2.1	0.7	1	3
Financial Institutions	71	2.3	1.1	1	4	2.2	1.1	1	4	2.1	1.0	1	4
Investment	22	2.8	1.1	1	4	2.0	1.2	1	4	2.8	1.3	1	4
Fixed-Floating Invest-													
ment	39	2.9	1.2	1	4	3.4	1.1	1	4	3.0	1.2	1	4
Institutional Investor	81	2.2	1.2	1	4	2.7	1.1	1	4	1.9	0.6	1	3
Investment Grade	93	2.3	1.1	1	4	2.9	0.9	2	4	2.6	1.1	1	4
IPO - Initial Public													
Offer	87	2.2	1.1	1	4	2.1	0.7	1	3	2.0	0.8	1	3
Joint Venture	81	2.4	1.2	1	4	1.4	0.5	1	2	2.3	1.0	1	4
Leverage	82	2.1	1.1	1	4	2.9	0.9	2	4	1.9	1.2	1	4
Leveraged Buy Out	89	2.0	1.2	1	4	1.8	1.0	1	4	1.9	0.7	1	3
Securities settlement	56	2.5	1.2	1	4	2.1	1.2	1	4	2.4	1.2	1	4
Liquidity	20	2.8	1.2	1	4	3.3	0.9	2	4	2.5	1.3	1	4
Management Buy Out	94	2.2	1.3	1	4	1.6	0.8	1	3	2.4	1.1	1	4
MBS - Mortgage													
Backed Securities	85	2.2	1.2	1	4	2.5	1.4	1	4	2.0	0.5	1	3
Financial Markets	47	2.6	1.2	1	4	2.6	1.3	1	4	2.6	1.3	1	4
Merchant Bank	85	2.2	1.1	1	4	1.9	0.9	1	3	1.7	1.0	1	3
Bond	37	2.4	1.1	1	4	3.9	0.3	3	4	2.7	1.1	1	4
OICR- Organismi di													
Investimento Collettivo													
del Risparmio	86	2.4	1.2	1	4	2.9	0.9	2	4	3.0	1.0	2	4
Tender Offer	77	2.5	1.2	1	4	2.0	0.8	1	3	2.1	1.1	1	4
Option	83	2.4	1.2	1	4	3.6	0.5	3	4	2.1	1.2	1	4
Bad Debts	86	2.1	1.1	1	4	1.8	0.6	1	3	2.1	1.2	1	4
Regulatory Capital	84	2.2	1.1	1	4	2.9	1.0	1	4	2.2	1.1	1	4
Net Assets	53	2.5	1.1	1	4	3.1	1.3	1	4	2.3	0.9	1	3
Shareholder Agreement	81	2.3	1.1	1	4	1.7	0.7	1	3	1.9	1.0	1	3
Plain Vanilla Securities	87	2.3	1.2	1	4	2.6	1.4	1	4	2.3	1.1	1	4
Life Insurance	11	2.7	1.2	1	4	3.7	0.5	3	4	2.6	1.3	1	4
Index-Linked	76	2.6	1.1	1	4	3.3	0.7	2	4	2.4	1.1	1	4
Unit-Linked	76	2.5	1.1	1	4	3.3	0.7	2	4	2.3	1.0	1	4
Premium	39	2.4	1.1	1	4	2.7	1.2	1	4	2.1	1.2	1	4
Price/Book Value	89	2.1	1.1	1	4	2.3	0.8	1	4	2.0	0.8	1	3
Price/Earnings	94	2.1	1.1	1	4	2.4	0.8	1	4	2.0	0.9	1	3
Private Banking	83	2.1	1.1	1	4	2.0	0.8	1	3	2.3	1.0	1	4
Private Equity	89	2.2	1.1	1	4	2.0	0.9	1	4	2.1	0.9	1	3

Variable	NR	Users (140)				Scholars (10)				Professionals (10)			
		Mean	Std.	Min	Max	Mean	Std.	Min	Max	Mean	Std.	Min	Max
Structured Finance	82	2.5	1.2	1	4	3.0	0.9	1	4	2.8	1.0	1	4
Risk Profile	67	2.7	1.2	1	4	3.4	0.7	2	4	2.9	1.2	1	4
Financial Advisor	41	2.4	1.2	1	4	3.2	0.9	2	4	2.2	1.2	1	4
RePO	79	2.7	1.2	1	4	3.6	0.5	3	4	2.3	1.2	1	4
Risk Propensity	78	2.4	1.2	1	4	3.1	1.1	1	4	2.7	1.2	1	4
Basis Point	85	2.3	1.2	1	4	3.2	0.6	2	4	2.9	1.4	1	4
Instalment	23	2.7	1.2	1	4	3.4	0.7	2	4	2.7	1.3	1	4
Bank Deposits	77	2.0	1.2	1	4	2.1	1.0	1	4	2.1	1.2	1	4
Compound Basis	79	2.4	1.2	1	4	3.6	0.7	2	4	2.4	1.1	1	4
Simple Interest Method	77	2.4	1.2	1	4	3.6	0.7	2	4	2.7	1.2	1	4
Expected Return	59	2.4	1.2	1	4	3.7	0.7	2	4	2.8	1.1	1	4
Actual Return	54	2.7	1.2	1	4	3.8	0.4	3	4	2.8	1.1	1	4
Annuity	34	2.7	1.2	1	4	3.2	0.9	2	4	2.8	1.1	1	4
Risk	41	2.8	1.2	1	4	3.8	0.4	3	4	3.1	1.2	1	4
Asset Management	63	2.6	1.2	1	4	3.5	0.5	3	4	2.7	1.1	1	4
ROE - Return on Equity	87	2.5	1.2	1	4	2.6	1.3	1	4	2.2	0.8	1	3
Asset Management													
Companies	83	2.4	1.0	1	4	2.8	1.0	1	4	2.2	1.2	1	4
Investment Company													
with Variable Share													
Capital	81	2.5	1.1	1	4	2.8	0.9	1	4	2.4	0.7	2	4
Stock Broking Company	80	2.3	1.1	1	4	2.7	0.9	1	4	2.1	1.1	1	4
Underwriter	74	1.9	1.1	1	4	2.1	1.1	1	4	2.1	1.2	1	4
Speculative Grade	87	2.0	1.0	1	4	2.8	1.0	1	4	2.1	0.9	1	3
Speculation	62	2.3	1.2	1	4	2.5	1.4	1	4	2.7	1.1	1	4
Spread	35	2.7	1.2	1	4	3.9	0.3	3	4	3.0	1.2	1	4
Swap	81	2.4	1.1	1	4	3.1	1.2	1	4	2.9	1.1	1	4
APR	45	2.6	1.2	1	4	3.9	0.3	3	4	3.0	1.2	1	4
Annualised Agreed Rate	45	2.7	1.2	1	4	3.9	0.3	3	4	3.1	1.0	1	4
Inflation Rate	37	2.7	1.2	1	4	3.6	1.0	1	4	3.0	1.2	1	4
Indexed Interest Rate	54	2.5	1.1	1	4	2.9	1.4	1	4	2.9	1.3	1	4
Floating Interest Rate	37	2.6	1.1	1	4	3.6	1.0	1	4	2.9	1.3	1	4
Yield To Maturity	61	2.6	1.1	1	4	3.6	0.7	2	4	2.6	1.1	1	4
Nominal Rate	60	2.6	1.2	1	4	3.5	0.7	2	4	2.4	1.2	1	4
Real Rate	59	2.8	1.1	1	4	3.5	0.7	2	4	2.6	1.1	1	4
Mortgage	74	2.7	1.2	1	4	3.3	1.3	1	4	3.0	1.2	1	4
Internal Rate Of Return	87	2.3	1.1	1	4	3.3	0.8	2	4	2.8	1.0	1	4
Risk-Free Rate	84	2.4	1.1	1	4	3.8	0.4	3	4	2.9	1.1	1	4
APCR	87	2.2	1.1	1	4	3.8	0.6	2	4	2.7	1.1	1	4
Junk Bond	77	2.3	1.2	1	4	2.9	1.2	1	4	2.3	1.0	1	4
Security	45	2.5	1.1	1	4	3.2	1.3	1	4	2.6	1.1	1	4
Government Bonds	34	2.8	1.2	1	4	3.2	1.3	1	4	2.4	1.0	1	4
Troika	88	2.2	1.1	1	4	1.7	0.9	1	4	2.4	1.1	1	4
VAR - Value at Risk	91	2.2	1.2	1	4	2.6	1.1	1	4	2.7	1.4	1	4
Venture Capital	87	2.4	1.1	1	4	2.0	1.1	1	4	2.1	1.2	1	4
Volatility	81	2.3	1.1	1	4	3.7	0.5	3	4	2.6	1.1	1	4
Warrant	90	2.5	1.1	1	4	3.5	0.7	2	4	2.3	0.9	1	4

References

- Ashby J., Shoon I. and Webley P. (2001) 'Save Now, Save Later? Linkages Between Savings Behavior in Adolescence and Adulthood', *European Psychologist*, 16 (3), pp. 227-237.
- Atkinson A. and Messy F. (2012) 'Measuring Financial Literacy: Results of the OECD/International Network on Financial Education (INFE) Pilot Study', OECD Working Papers on Finance, Insurance and Private Pensions, No. 15, OECD Publishing.
- Barber B.M. and Odean T. (2001) 'Boys Will Be Boys: Gender, Overconfidence, and Common Stock Investment', *The Quarterly Journal of Economics*, 116 (1), pp. 261-292.
- Bell C., Gorin D. and Hogarth J.M. (2009) 'Does Financial Education Affect Soldier's Financial Behavior?', Networks Financial Institution at Indiana State University Working Paper 2009-WP-08.
- Berti A.E. and Monaci M.G. (1998) 'Third Graders Acquisition of Knowledge of Banking: Restructuring or Accretion?', *British Journal of Educational Psychology*, 68 (3), pp. 357-371.
- Berti, A.E. and Bombi, A.S. (1988). *The Child's Construction of Economics*. New York: Cambridge University Press.
- Braunstein S. and Welch C. (2002) 'Financial Literacy: An Overview of Practice, Research and Policy', *The Federal Reserve Bulletin*, November.
- Caratelli M., Filotto U., Naccarato A. and Nicolini G. (2009) 'Non è mai troppo tardi: l'imperativo ergonomico nella Financial Education', in Bracchi G. and Masciandaro D. (Eds.), *Dopo la crisi. L'industria finanziaria italiana tra stabilità e sviluppo*, XIV Rapporto sul Sistema Finanziario Italiano – Fondazione Rosselli, Milano: Edibank, pp. 285-331.
- Chowa G. and Ansong D. (2010) 'Youth and Savings in Assets Africa', *Children and Youth Services Review*, 32 (11), pp. 1591-1596.
- Dewey, J. (1938). *Experience and Education*. New York, NY: Kappa Delta Pi.
- Elliott W. and Beverly S. (2011) 'Staying on Course: the Effects of Assets and Savings on the College Progress of Young Adults', *American Journal of Education*, 117 (3), pp. 343-374.
- Elliott W., Jung H. and Friedline T. (2010) 'Math Achievement and Children Savings, Implications for Child Development Accounts', *Journal of Family and Economic Issues*, 31 (2), pp. 171-184.
- Erlukar, A. and Chong, E. (2005). *Evaluation of a Savings and Microcredit Program for Vulnerable Young Women in Nairobi*. Nairobi: Population Council.
- Filotto U. (2009) 'Conoscere rende liberi. Riflessioni sull'educazione finanziaria', *Bancaria*, 65 (10), pp. 23-32.
- Filotto U. and Nicolini G. (2010) 'The Role of Self-Accounting and Financial Capability in Consumer Credit Decisions', *Journal of Modern Accounting and Auditing*, 6 (2), pp. 43-58.
- Financial Services Authority (1998) 'Promoting Public Understanding of Financial Services :A Strategy for Consumer Education', November, Consultation Paper 15, London, FSA.
- Fondazione Rosselli – Consorzio Patti Chiari (2013). *Le esperienze di educazione alla cittadinanza economica. Indagine sulla realtà italiana nel contesto internazionale*, Tracò F. (Ed.), Roma.
- Fox J.J. Bartholomae S. and Lee J. (2005) 'Building the Case for Financial Education', *Journal of Consumer Affairs*, 39, pp. 195-214.
- Friedline T.L., Elliott W. and Nam I. (2011) 'Predicting Savings from Adolescence to Young Adulthood: A Propensity Score Approach', *Journal of the Society for Social Work and Research*, 2 (1), pp. 1-22.
- Gale W.G. and Levine R. (2010) 'Financial Literacy: What Works? How Could It Be more Effective?', Financial Security Project at Boston College Working Paper , FSP 2010-11.
- Kahneman, D., Slovic, P. and Tversky, A. (1982). *Judgement Under Uncertainty: Heuristic and Biases*. New York NY: Cambridge University Press.
- Kahneman D. and Tversky A. (1979) 'Prospect Theory: An Analysis of Decision Under Risk', *Econometrica*, 47 (2), pp. 263-291.

- Kahneman D. and Tversky A. (1981) 'The Framing of Decision and the Psychology of Choice', *Science*, 211 (4481), pp. 453-458.
- Kolb D.A., Boyatzis R. E. and Mainemelis C. (2001) 'Experiential Learning Theory: Previous Research and New Directions', in Sternberg R.J. and Zhang L. (Eds.), *Perspectives on Thinking, Learning, and Cognitive Styles*. Mahwah, NJ: Lawrence Erlbaum Associates, pp. 227-247.
- Legrenzi, P. (2011). *I soldi in testa*. Milano: ed. Laterza.
- Lenartowicz A., Simpson G.V. and Cohen M.S. (2013) 'Perspective: Causes and Functional Significance of Temporal Variations in Attention Control', *Frontiers in Human Neuroscience*, 7, Article 381, pp. 1-7.
- Lewis S. and Messy F. (2012) 'Financial Education, Savings and Investments: An Overview', OECD Working Papers on Finance, Insurance and Private Pensions, No. 22, OECD Publishing. <http://dx.doi.org/10.1787/5k94gxrw760v-en>.
- Lovejoy L.P., Fowler G.A. and Krauzlis R.J. (2009) 'Spatial Allocation of Attention during Smooth Pursuit Eye Movements', *Vision Res.*, 49 (10), pp. 1275-1285.
- Lusardi, A. and Mitchell, O.S. (Eds.) (2011). *Financial Literacy: Implications for Retirement Security and the Financial Marketplace*. Oxford: Oxford University Press.
- Mandell L. and Klein L.S. (2009) 'The Impact of Financial Literacy Education on Subsequent Financial Behavior. A Review of the Literature', *Journal of Financial Counseling and Planning*, 20 (1), pp. 70-83.
- Marfil R., Palomino A.J. and Bandera A. (2014) 'Combining Segmentation and Attention: A New Foveal Attention Model', *Frontiers in Computational Neuroscience*, 8, Article 96, pp. 1-17.
- Martin M. (2007) 'A Literature Review on the Effectiveness of Financial Education', Federal Reserve Bank of Richmond Working Paper N. 07-03, June 15.
- Mason C.L.J. and Wilson R.M.S. (2000) 'Conceptualising Financial Literacy', Loughborough Business School, Research Series Paper 2000, n. 7, November.
- OECD Publishing (2005) 'Improving Financial Literacy: Analysis of Issues and Policies', <http://www.oecd.org/finance/financial-education/improvingfinancialliteracyanalysisofissuesandpolicies.htm>.
- Peng T.M., Bartholomae S., Fox J. and Cravener G. (2007) 'The Impact of Personal Finance Education Delivered in High School and College Courses', *Journal of Family and Economic Issues*, 28 (2), pp. 265-284.
- Pozuelos J.P., Paz-Alonso P.M., Castillo A., Fuentes L.J. and Rueda M.R. (2014) 'Development of Attention Networks and Their Interactions in Childhood', *Developmental Psychology*, 50 (10), pp. 2405-2415.
- Schagen S. and Lines A. (1996) 'Financial Literacy in Adult Life', https://www.nfer.ac.uk/publications/91091/91091_home.cfm.
- Ssewamala F., Han C. and Neilands T.B. (2009) 'Asset Ownership and Health and Mental Health Functioning Among AIDS – Orphaned Adolescents: Findings from a Randomized Clinical Trial in Rural Uganda', *American Journal of Public Health*, 100 (3), pp. 482-488.
- Viale, R. (Ed). (2005). *Le nuove economie. Dall'economia evolutiva a quella cognitiva: oltre i fallimenti della teoria neoclassica*. Milano: Il Sole 24 Ore.
- Vygotskij, L. (1978). *Mind and Society: the Development of Higher Mental Processes*. Cambridge: Harvard University Press.
- Webley P. (2005) 'Children's Understanding of Economics', in Barret M. and Buchanan-Barrow E. (Eds.), *Children Understanding of Society*, UK: Hove Psychology Press.