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GENDER DIFFERENCES IN FINANCIAL KNOWLEDGE AND BEHAVIOR - DESIGN OF STANDARD-ORIENTED PERSONAL FINANCE EDUCATION

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A B S T R A C T

All across Europe the enhancement of financial capability becomes increasingly important. E.g. in Great Britain "Personal Finance Education" was implemented mandatorily in the school curricula from class one to class ten from 2011 onwards. Relevant empirical studies on the level of financial knowledge reveal considerable deficits, which on the one hand are bigger for women than for men. On the other hand behavioral approaches focus on anomalies, which vary when comparing women and men and in particular have negative impacts when men are considered. This article discusses gender differences and models a gender-sensitive, standardized personal finance education that can be applied in teaching and learning arrangements at school.

Keywords: financial literacy, personal finance education, financial capability, learning standards, gender.

INTRODUCTION

Relevance of personal finance education: Already in the last years financial capability has become increasingly important, but due to the financial and economic crisis it once more is on the upswing. Financial services play a central role with regard to humans coping with everyday life. The following long-term trends require the increasing necessity of financial capability, especially for young people:

1. Private financial activities are increasingly influenced by the fact that various offers to cover present consumption (credit cards, payment in installments etc.) involve a loss of experience of immediacy when spending money (electronic payment transactions). In life situations of income formation and use as well as the purchase of consumer goods there is the danger of over-indebtedness, in particular in case of calamities as, for example illness, unemployment and divorce.
2. Increased income and inheritances provide new opportunities for money investment with a simultaneously growing complexity of the financial markets (Weber, 2008).
3. Biographies become more discontinuous and require greater flexibility. A the same time the restructuring of the welfare state results in a shifting of private provision into the private realm of the citizens (e.g. in the form of private old-age pension insurances) (Piorkowsky, 2003).
4. The financial crisis shows that decisions with regard to the financial investment behavior have to be taken in a sustainable way. In the context of a non-transparent market this entails the identification of dangers and uncertainties with respect to one's own money investment.

Due to the financial and economic crisis these trends become clearly apparent. The dangers and insecurities in the context of in transparent financial markets have become the focal point of public interest. In many respects the financial crisis creates a new momentum for the enhancement of personal finance education. Due to its topicality it offers educational occasions, which on the one hand underline the necessity of personal finance education, but which on the other hand also effect a confidence crisis in the government as well as in the market (KOM, 2008). All across Europe the enhancement

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of financial capability becomes increasingly important. E. g. in Great Britain "Personal Finance Education" was implemented in the school curricula from class one to class ten from 2011 onwards (KOM, 2008). Especially for young people the handling of money matters poses a big challenge. In this context one can give three reasons to implement the enhancement of personal finance education at school (Geithner 2009):

1. Youths should at least have some basic knowledge of financial aspects, before they make their first long-term financial decisions.
2. Financial literacy is based on the knowledge of economic concepts, as, for example the compound interest effect. It is often not possible to acquire this knowledge via experiential learning.
3. Financial capability is essential for the participation in society. All young people should have access to personal finance education so that their participation does not depend on the social background.

Meaning of personal finance education: In Germany, the acquisition of dealing with money matters is known under various terms, as, for example, "Finanzielle Allgemeinbildung" (Reifner 2003a), "Finanzbildung" (KOM 2008) and "Finanzkompetenz" (Piorkowsky 2008, S. 20). But also on an international level, you are confronted with diverse terms, as, for example "Personal Finance Education" (OECD 2005), "Financial Literacy" (Lusardi/ Mitchell 2009) or "Financial Capability" (FSA 2006 und Geithner 2009). The different terms are not to be understood synonymously, rather they represent different levels and orientations in the field of financial education (figure 1).

Personal Finance Education (Finanzielle Allgemeinbildung)	
Financial Literacy (Finanzbildung) referring to Educational Input Cognition	**Financial Capability** (Finanzkompetenz) referring to Educational Output Cognition, Affection, Volition

Fig 1. Terms in the field of personal finance education

The German concept of personal finance education aims at the effective handling of financial services. It focuses on the critical, needs-oriented imparting of knowledge and skills at school as part of consumer orientation (Piorkowsky, 2003 and Reifner 2003a). Whereas personal finance education has to be understood as superordinate concept for the acquisition of dealing with money matters at school, financial literacy and financial capability are programmatic orientations of financial instruction, which are associated with different concepts. According to the European Commission (KOM, 2008) financial literacy comprises knowledge about financial products and concepts as well as their utilization in the context of financial decisions in due consideration of chances and risks. This implies that financial literacy facilitates the rational handling of financial services according to one's own individual needs, gives assistance to avoid preventative dangers and facilitates negotiation skills as well as a changed awareness for the advancement of the market power. Thus, personal finance education can be considered as the education of consumers to economize rationally by a planning-related, provider- and self-critical employment of financial services (Reifner, 2003b). Personal finance education predominates under the term financial literacy in particular in the USA. It comprises knowledge of concepts and connections with financial products as well as the ability to form an opinion about financial matters on the basis of substantiated information (FPA, 2005). Whereas the main focus of financial literacy is on the educational input and on cognitive abilities (knowing, reasoning, learning), the British concept of financial capability aims at the extensive alteration of consumer behavior. Financial capability focuses on the sustainable alteration of behavior, of decisions and of practical abilities of individuals (Atkinson *et al*., 2006). Connected with this is a focus on the educational output and a behavioral orientation, which does not only comprise cognition, but also emotional and volitional aspects, i. e. objectives, motives, attitudes and value systems (Piorkowsky, 2008).

In the following it is talked of financial literacy in terms of the literacy concept, if there is a focus on cognition (knowing, reasoning, learning) and the educational input. It is talked of financial capability in terms of the capability concept, if an all-embracing behavioral model (emotional, cognitive and volitional) and the educational output are in the center of attention.

EMPIRICAL REVIEW ON FINANCIAL LITERACY AND FINANCIAL CAPABILITY

Surveys on the level of financial literacy*:* Relevant empirical studies, e.g. by Bertelsmann Stiftung (Heien and Kortmann, 2003) as well as by Commerzbank/ NFO Infratest (2003) on the level of financial knowledge reveal considerable deficits and that women are less familiar with financial matters if compared to men. In the context of the Commerzbank study more than 1,000 men and women aged between 18 and 65 were confronted with questions on topics of general financial knowledge. Whereas men answered 68% of the questions correctly, only 50% of the women's answers were correct. The differences between the sexes in matters of financial literacy vary in certain fields. With regard to the topics of income, payment transactions and loans women's knowledge is only marginally below the knowledge of men, whereas women leave more to be desired with regard to the topics of private provision and money investment.

Lusardi and Mitchell (2008) arrived at similar results: In the context of interviews (n = 785/ only women) three questions on rates of interest, inflation and diversification are asked. Only 29% of the women were able to answer all three questions correctly, which is considered to be an indicator for low financial knowledge.

Surveys on the level of financial capability: In Great Britain results of the FSA study (2006; n = 5.328) show that there is not 'the one' indicator, which signalizes financial capability or rather -incapability and that an exclusive assessment of financial knowledge is not advantageous. They point out that on the behavioral level financial capability can be classified in the following four areas and that deficits, which are related to this, can be very different:

a) managing money,
b) planning ahead,
c) choosing products and
d) staying informed.

Exposure to depression is noted to have gender dimensions and the role of gender as a determinant of health is well established in the literature The authors of the FSA study refuse to make absolute statements on the state of financial capability in Great Britain. Rather it is important to identify, which fields of competence can be defined, which individual differences can be identified and on the basis of which criteria they can be explained. All things considered it could be found out that in Great Britain the biggest group (36%) has to be classified as very capable in financial matters. Typically, this group consists of older, well-off couples. However, the second biggest group (16%) is found in the lower quarter of the scale for financial capability and represents younger single persons with a low income. When explaining the differences in the financial capability with the help of age, a strong significance is observable: the younger the more incapable, with the lowest value in the age group between 18 and 19 years. In the fields of competence b) to d) differences in the financial capability – moreover – can be explained very significantly by gender, where women always do more poorly.

In addition to the four fields of competence, the FSA study also examined the financial knowledge of the participants, which so far has been in the center of attention in German studies. Whereas the four fields of competence feature a strong positive interconnection, the interconnections of the fields of competence with the financial knowledge turn out to be moderate. It becomes obvious that financial literacy assesses something totally different in comparison to financial capability.

The empirical findings lead one to assume that personal finance education is inefficient, if it only considers knowledge and cognition (rationality). There is also evidence from the behavioral economic research of Tversky and Kahneman (1981), which shows that personal decisions are influenced by a multitude of anomalies, i. e. irrational behavior as, for example, self-overestimation, loss aversions and control illusions. As a consequence the behavioral level should be included comprehensively and financial capability should be enhanced in due consideration of systematic irrational behavior (anomalies).

Gender-specific differences with regard to financial behavior: The concept of the "Homo Economicus" symbolizes the model of individual action on the basis of absolute rationality, which is implied in economics. However, the model does not live up to reality in most of the cases. Already more than half a century ago Simon (1955) criticized that the Homo Economicus should be adapted and introduced the concept of bounded rationality (Simon, 1972).

In particular Kahneman and Tversky (1981) show in many experiments that the behavior of Homo economics is to be extended by psychological aspects. On the one hand humans encounter the information overload with heuristics; on the other hand they are influenced by theirtation of the mind, i. e. affective processes in the brain consciously and unconsciously.

Heuristics are subjective strategies, which help to achieve satisfying results with little effort. To some extent, they take place cognitively, but in most cases in an automated and unconscious way. Heuristics can be very disadvantageous, as they do not develop in a rational way or rather as they are not reflected upon in a rational way. In this way irrational behavior can be reproduced systematically. Affective processing in the brain leads to short-term reactions, which – even if the person is aware of his/her emotions – consider only a small decision horizon due to their impulsive character.

Behavioral economics (and as special subject area behavioral finance) focuses on human decisions which are systematically biased. Typical irrational behavioral patterns of individuals, the so-called anomalies, are in particular analyzed with the help of experiments. In the course of time a multitude of anomalies could be discovered, which can be identified very well especially in the case of stock market investments. Anomalies become apparent in decision situations, as e. g. in case of the consumption decisions. Here it is relevant to perceive, to process, to assess and control information correctly. Part of this is also the appraisal of one's own abilities and willingness. Thus, the anomalies of behavioral economics can be related to the information process (figure 2), which takes place before and after the decision. Figure 2 illustrates a selection of anomalies, which are characteristic of private financial actors, as e. g. selective perception, self-overestimation, loss aversion or herding.

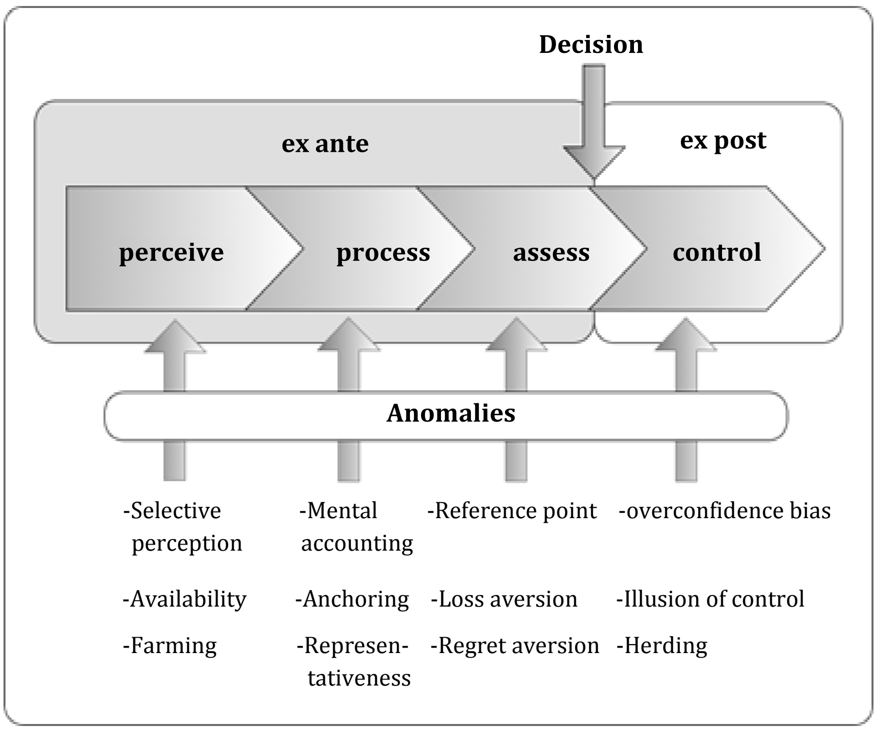

Fig 2. Information process as basis for decision-making (Mittelstaedt, 2011)

Women and men do not only differ with respect to their knowledge on financial matters, but also with regard to financial interactions differences can be registered. Women organize their money transactions according to the principle of economy and efficiency. Their preferences with regard to money are in contrast to men, who intend to increase their income to realize a good quality of life. When investing money they favor security over profit. The preference-determined savings structure is mirrored by rather conservative types of investment, which can be used flexibly and only have a minimum of risk. This investment behavior could also be reinforced at the stock market: Whereas 45% of the women (but only 33% of the men) put money in conservative investments, as e.g. a combination of shares and investment funds, only 3% of the women (but 9% of the men) invest in risky combinations like shares and warrants (DAB, 2001 and DAB, 2002.). All in all in can be stated that with regard to their investment behavior, women are rather risk-averse or even tend to attentism, whereas men rather behave more riskily or even are highly speculative.

In spite of the different investment preferences the "Direkt Anlage Bank" (DAB, 2002) comes to the result that women perform better on the stock exchange than men. In the year 2000 they realized an investment result that was better by 2.8% than that of male investors, in the year 2001 it was even better by 9.5%. According to DAB the reason is that men redeploy their portfolio more often. At an average, the transaction volume of men was five times as high as that of women, but the portfolio values of men were only about three times as high as the portfolio values of women.

INTERIM CONCLUSION

The following conclusion can be drawn from these explanations: In the field of personal finance education deficits can be found, which

1. are mirrored in fundamental knowledge deficits that are bigger for women than for men and
2. are mirrored in behavioral anomalies, which in the case of women are e.g. characterized by risk-averse behavior or even by attentism and - in the case of men by risky and especially self-overestimating behavior.

Thus, personal finance education should lay focus on financial capability rather than on financial literacy. Individuals are no Homini economici and their financial behavior depends significantly on age, gender and socio-economic status. Financial literacy approaches mainly address knowledge deficits; behavioral approaches mostly remain unconsidered.

It must be the objective to increasingly orient the pedagogy of personal finance education towards the structure of the target group and to consider the socio-economic background, the age and the perspective of gender. The shift from knowledge to behavior means to emphasize the learning outcome in order to assess educational processes with respect to their efficiency and content with respect to its effectiveness.

GENDER-SENSITIVE AND STANDARD-ORIENTED PERSONAL FINANCIAL LITERACY

The implementation of a gender-sensitive and standard-oriented personal finance education requires teaching and learning arrangements, which enable girls as well as boys to get involved and to develop further according to their learning needs. In order to include the category of gender as cross-sectional perspective into pedagogy, a gender-sensitive economic education should refer to the three phases of an educational measure (planning/ development, organization/ implementation, assessment). For this purpose Wiepcke (2006, p. 87-110) developed a gender-sensitive teaching model, which is based on the key aspects target group, framework conditions, objectives (derived from learning standards), topics, methods and media, measurement of the learning success and guidance behavior (cf. figure 3).

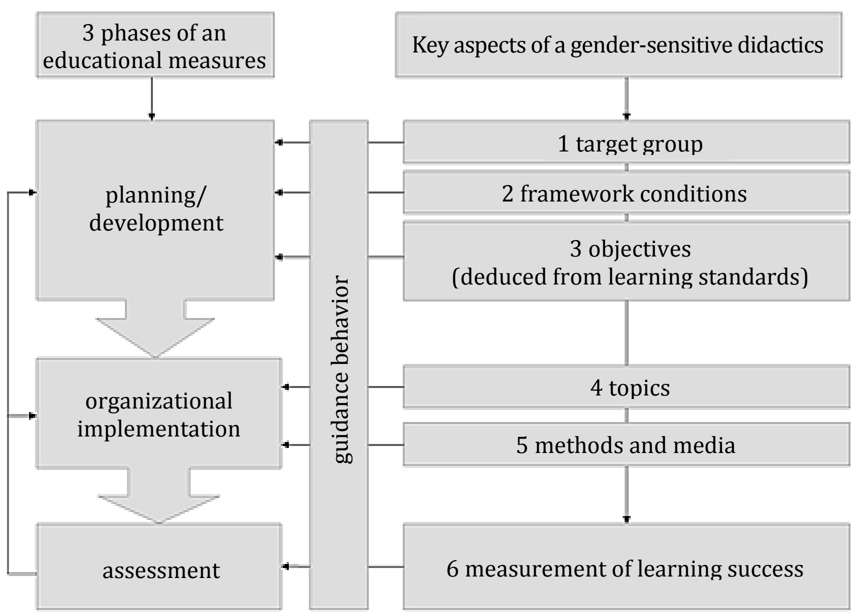

Fig 3. Figure 3: Key aspects of a gender-sensitive didactics (Wiepcke, 2006).

With respect to personal finance education the following aspects have to be considered (Wiepcke, 2006).

Target group: With regard to the *participants* it is important to consider the different individuals separately and not to treat the learning group as closed construct. Participants do not only form a heterogeneous group with regard to gender. Heterogeneity can also prevail with respect to previous knowledge, migration background, social background, sexual orientation etc. The heterogeneity of the learning group can be taken into consideration by using a purposeful culture of communication. Here, the communication and interaction of the teaching staff play an essential role. It is postulated that girls as well as boys are involved in conversation sequences in equal measure, that gender-stereotyped behavior of both sexes is perceived and scrutinized critically and that ideas and solutions for these and other problems are discussed openly and in detail (Lehmann, 2003). Apart from that it is advisable to refer to the learners' heterogeneous living environments, in order to guarantee that their interests are appreciated.

Framework conditions: The framework conditions of personal finance education should consider the living conditions of men as well as of women. Gender-sensitive concepts of addressing, examples and illustrations are part of this. They primarily relate to the topics and comprise gender-sensitive subject matters as well as non-stereotyped representations of men and women. A gender-sensitive choice of topics comprises anchors, examples and decoration elements taken from the experience horizons of both sexes. The non-stereotyped representation of men and women can be achieved by showing both sexes in untypical occupations, situations and positions as well as by avoiding clichés and out-dated stereotypes.

Objectives: The paradigm shift from input- to output orientation is implemented with the help of learning standards. Learning standards formulate subject-specific and interdisciplinary basic qualifications, which are of importance for the further academic and occupational education and which enable connectable learning. The standards are in line with the mission of school education. They aim at personality development and world orientation, which are the result of the encounter with central aspects of our culture. (KMK, 2003). Apart from that learning standards are supposed to refer to area-specific competencies. As minimum standards they fulfill fundamental subject-specific, personal and interpersonal competences, which are supposed to be achieved at the end of the learning process. By now, there are no validated output-oriented learning standards for personal finance education. One can only find input-oriented financial learning standards (Jumpstart, 2007) and a variety of graduation-related learning standards for economic education (Degoeb, 2005 or CEE, 2010).

Topics: With respect to the curricula it first has to be analyzed, which theories embrace the different life styles and situations of learners. One theory, which influences the financial behavior of individuals, is the theory of household economics (cf. Becker 1981). Still today the model of household economics is used by the World Bank as basic model to conceptualize the economic behavior of households (Kuiper 2008). It assumes that a family has got a shared utility function and that the utility within the family is highest in case of division of labor. Division of labor assumes that one partner mainly makes his/her labor available on the market, whereas the other mainly performs household duties. According to the theory of comparative advantages that partner will make his/her labor available to the market, who can realize a higher income. The one, who relatively speaking is more productive in the household, will work there. In the model of the traditional family the household has the highest efficiency, if the man is the main earner. The traditional model is criticized for the fact that only the total utility of the household is considered and not the individual interests of the family members. Women's specialization on household tasks, which is attributed to them here, weakens their position on the labor market and thus also their negotiating position within the family. In the context of an increasing number of single-person households and divorces a complete specialization on household work cannot any more be considered as rational behavior (Kuiper 2008).

The theory, which still is entrenched in personal finance education, has a great impact on the socialization of the sexes: Men are confronted with the expectation to become the breadwinner of their family. For women it is only considered to be secondary to be employed somewhere. To use their own employment as source of subsistence is only expected from them until they get married and have children (Wrede, 2003). Furthermore, the consequence for the manner of handling money matters can be deduced from socialization. As women have a lower income at their disposal they are often financially dependent, they distance themselves from their fundamental wishes as well as their self-responsibility and thus are systematically deprived of their ability to assume responsibility for financial matters. The consequence is little interest in financial matters, which results in less financial knowledge. The low level of financial capability leads to ignorance of this topic and to a lack of contract closings in the field of money investment and old-age provision. Due to this women are hit by old-age poverty more strongly and get into precarious life situations as single parents (Wrede, 2003).

Which consequences arise from this for the content-related organization of personal finance education? Gender-specific financial behavior should be discussed and put into question. Apart from that the model of comparative cost advantages has to be considered in the context of an increasing number of single-person households and the out-dated stereotype of women as secondary wage earner has to be corrected (Krafft/ Wiepcke, 2005). Only in this way it is possible to counteract a misdirected socialization of men and women and to develop a consciousness and interest for the urgency for their own financial provision.

In the entire field of personal finance education it is important to guarantee the practical relevance and usefulness of the topics as well as their transfer on diversity. This is possible by mirroring real situations and by applying them in different contexts with the help of the subject matters.

Methods and Media: Whereas the content calls for the deconstruction of gender, it is different for the methodical and media-related orientation. The *methodical and media-related arrangement* should consider different interests and initial conditions, manners of communication and interaction of men and women. Neither women nor men are to be constrained in the development of their learning needs. Studies from co-education research show (Lehmann, 2003) that the choice of teaching methods and media as well as the consideration of different ways and styles of learning are of particular importance to do justice to men as well as to women. For this, methods and media are suited, which facilitate female as well as male abilities. Learning occasions, in which every individual is regarded equally, in which their interests are included and they are inspired to accept new challenges, are discussed by *inclusive education* (Kreienbaum, 2008).

It becomes obvious that a gender-sensitive methodical and media-related orientation moves away from teacher-centered education to student-centered learning, which features a mixture of co-operative and competitive elements.

Measurement of the learning success: A central characteristic of learning standards is that they call for tests, which assess the output level empirically. Whereas with regard to the formulation of learning standards first advances can be noted, competence diagnostics as well as the development of suitable measurement tools are still in early stages.

As already formulated in the beginning, it is the central goal of personal finance education to enhance the financial capability. As there are gender-specific differences with respect to financial knowledge and –behavior, pedagogical concepts furthermore face the challenge to discuss those. This means that women and men are supposed to have the same competences at the end of the learning process, in order to get the same opportunities for coping with life and daily routine.

Guidance behavior: Guidance behavior refers to the teacher. It requires sensitivity with regard to gender-related behavioral patterns. Already teacher education of the first phase should comprise necessary gender competences and the gender-related self-reflection of one's own behavior. This implies that teachers deal with their own role as woman or man and the value systems, which are connected with this and that they are aware of their own learning biography. The focal point is the development of an awareness that existing gender relations change continuously and that teachers participate in these processes and shape them actively. Teachers have to recognize that the learning processes for girls and boys have to be on a par. These findings again have to be related to the content-related and methodical orientation of education. In this context, Lehmann (2003) proposes measures for implementation, as, for example the examination of teaching materials, textbooks and exercise materials with respect to equality standards, the discussion of the opportunities and boundaries of co-education on the basis of concrete examples and different working methods as well as the conscious training of perception and analysis of communication and interaction in class, in order to recognize subtle mechanisms of discrimination and to uncover apparent stereotypes.

CONCLUSION

The explanations show that the different key aspects of gender-sensitive personal finance education require different approaches. Whereas the formulation of learning standards, the content-related orientation and the measurement of the learning success call for the deconstruction of gender, the consideration of the target group and the framework conditions, the methodical and media-related orientation as well as the guidance behavior of teachers ask for a conscious construction and utilization of gender (doing gender/ inclusive education), where one directly responds to female and male behavior patterns.

This concept of a gender-sensitive personal finance education is based on the formulation of learning standards, which are supposed to set benchmarks for the result of educational processes. The concept incorporates the enhancement of fundamental subject-related, personal and interpersonal competences and formulates results, which are to be achieved at the end of the learning process (Krafft/ Wiepcke 2005). In the context of personal finance education of men and women, learning standards should reveal the background of economic theories and thus of prevalent gender-specific stereotypes and create a critical awareness for the judging of these theories and stereotypes. They should make aware of female and male behavior with regard to gender-specific financial behavior and sensitize both sexes for a likewise active and self-determined financial behavior, where one's own financial security is in the foreground.

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