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# Teachers' Financial Literacy from a Swiss Perspective

Doreen Holtsch and Franz Eberle

## Summary

In this paper, we present findings on teachers' financial literacy from a Swiss perspective. Analyses of the curricula of different levels and types of Swiss schools reveal that financial literacy should be taught. However, the learning objectives and curriculum contents regarding financial literacy vary in terms of detail and duration. To teach financial literacy, teachers must have the appropriate knowledge. International empirical results show that teachers have low levels of economic and financial literacy. International empirical results for other subjects reveal that formal opportunities to learn provide teachers with content and pedagogical content knowledge to teach economic and financial literacy. However, Swiss teachers' education and training is currently subject to reforms and remains heterogeneous. Therefore, we assume that Swiss teachers' financial literacy is insufficient, which could negatively influence their students' knowledge.

# 1 Introduction

The aim of economic literacy education<sup>1</sup> is to foster individuals' competent and responsible participation in economic and social life. Financial literacy is viewed as a necessary but insufficient aspect of economic literacy. Financial literacy optimises individuals' utilisation of financial sources to sustain capital and avoid debt.

*Financial literacy* has been widely discussed. For example, Barry (2014) summarises and compares the essential conceptualisations of financial literacy, such as those from the OECD, Vitt et al. (2000), and Atkinson and Messy (2012)<sup>2</sup>. Furthermore, Aprea (2014) systematically discusses different conceptualisations of financial literacy. She developed an approach in which the financial ability to act focuses on both the individual and systemic perspective. Atkinson and Messy (2012, pp. 6-9) operationalised three subareas of financial literacy, financial knowledge<sup>3</sup>, financial behaviour, and financial attitude. Manz (2011) presents a three-dimensional competency cube model to define financial literacy. The first dimension summarises the following five activity domains: earning money, spending money, getting into debt, saving and investing, and dealing with risks. The second dimension includes 1) knowledge of financial activity domains, 2) the necessary skills and 3) the attitudes towards these fields. The third dimension involves the necessary professional, social and personal competencies. Manz's (2011) model thus offers a comprehensive and differentiated approach to modelling financial literacy. This model overlaps with Aprea's (2014) and Atkinson and Messy's (2012) approaches. We adopt a financial literacy approach that combines knowledge, behaviour, and attitude towards financial literacy.

In this paper, we first present challenges that teachers face in terms of financial literacy (chapter 2). Financial literacy education is relevant for all school levels. However, as the target group becomes older (e.g., lower-secondary school versus upper-secondary school) and the school type becomes more specific (e.g., baccalaureate school versus commercial vocational school), the content becomes more sophisticated. Although the educational goals for young learners (kindergarten up to 6<sup>th</sup> year) are primarily informative (e.g., goods and money and working models), older learners should be prepared for concrete decisions and actions (e.g., budget planning and contract of purchase) (Ackermann and Eberle in press). Because the financial curricula vary substantially across different school levels and types, teachers' knowledge requirements also vary largely.

Teachers have to address different demands based on the relevance of financial literacy education in the curricula. These demands require teachers to have content knowledge and pedagogical knowledge of financial literacy. In the absence of data for Switzerland, we include international findings on teacher's knowledge (section 2.2) and its relevance for students (section 2.3).

Furthermore, Swiss teacher education and training has been undergoing fundamental reforms since 1990. Through those reforms, teacher education and training should become more academic and autonomous (Criblez 2012). Irrespective of these reform efforts, it is evident that the content of the lectures varies based on the different requirements of different school levels and types, e.g., compulsory school, baccalaureate school and vocational school; thus, teachers have different opportunities to learn (Hofacher and Rhyn 2008, p. 23). In chapter 3, we discuss teachers' opportunities to learn and to develop their content and pedagogical content knowledge. Considering three school types, we describe the formal learning opportunities that teachers can access. In addition, we discuss vocational school teachers' educational and working pathways. Finally, existing (research) gaps in teachers' financial literacy are identified.

## 2 Relevance of Financial Literacy in the Swiss Schools' Curricula and Findings on Teachers' Financial Literacy

### 2.1 *Relevance of Financial Literacy in the Swiss Schools' Curricula*

After studying at compulsory school (1<sup>st</sup> to 9<sup>th</sup> grade), students can choose between different post-compulsory educational pathways in Switzerland. One option is to enrol in a baccalaureate school, which focuses on an academic education and prepares students for further education at a university. Twenty percent of the 19-year-old Swiss population completed baccalaureate school in 2014<sup>4</sup>. A second option is to receive vocational

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<sup>1</sup> In this paper, financial literacy is also referred to as economic literacy.

<sup>2</sup> The quoted study of Atkinson and Messy is a pilot study of both the OECD and the International Network on Financial Education (INFE).

<sup>3</sup> Atkinson and Messy (2012, pp. 7, 17) define the following eight key financial concepts: division, time-value of money, interest paid on a loan, calculation of interest, compound interest, risk and return, definition of inflation, and diversification.

<sup>4</sup> <http://www.bfs.admin.ch/bfs/portal/de/index/themen/15/06/dos/blank/05/01.html> (2015-05-05)

education and training (VET)<sup>5</sup>; two-thirds of the Swiss population choose this option each year<sup>6</sup>. Each school type has a different curriculum. Teachers should implement the curriculum and the contents regarding financial literacy. Therefore, a curriculum states the demands for teaching financial literacy. In the following, we focus on the curricula that promote financial literacy in these school types.

- **Curricula of Compulsory Schools**

Ackermann and Eberle (in press) described the financial education that students in compulsory schools and other educational programs in Switzerland receive. In addition, they analysed the 1<sup>st</sup> to 9<sup>th</sup> grade compulsory school curricula of Berne and Zurich. The curriculum of the canton of Zurich covers four<sup>7</sup> and the canton of Berne covers two<sup>8</sup> of Manz's (2011) activity domains. The analysis of Ackermann and Eberle (in press) shows that economic and financial literacy are represented in social and natural sciences, particularly in *Economy, Labour and Household*, *Mathematics* as *Media* and *IT*. The authors also included the *Lehrplan 21*<sup>9</sup> in their analysis. This is a recently developed common curriculum for German-speaking cantons that considers the economic and financial literacy of students in a more explicit and distinguished manner. *Lehrplan 21* might be realised in 2015. Ackermann und Eberle (in press) conclude that it considers nearly all of Manz's (2011) financial literacy activity domains.

- **Curricula of Baccalaureate Schools**

In contrast to the *Lehrplan 21* for compulsory schools, the curricula of the baccalaureate schools are the responsibility of the cantons and vary significantly. A study analysed the curriculum of the canton of Berne for education levels 9 to 12. The general educational goals for *economics and law*<sup>10</sup> are as follows: *The students gain insights into the function of economics as educational goals as a whole, so that they can understand the economical, legal and social events, interpret them and make their own decisions.* (Erziehungsdirektion des Kantons Bern 2005, own translation). The review of the *economics and law* curriculum of the canton St. Gallen illustrates that students should be prepared to address changeable economic, legal and social systems and to become mature citizens (Erziehungsrat im Kanton St. Gallen 2006, own translation). The reviews of the subject learning objectives in *economics*, *business administration*, *law*, and *accounting* in both cantons show that the contents focus on a broad range of Manz's (2011) activity domains. In addition, the subject learning objectives<sup>11</sup>, e.g., taxes, public finances, public revenues and debts, focus more on the general economic-financial perspective than on individual financial decisions.

- **Curricula of Vocational Schools**

The economic education of VET in Switzerland dates back to Dubs' (2014) established work. He states that economic education prepares students for their future occupations and participation in economics and society. For commercial trainees, this twin objective is anchored in their education plan as key objectives for *economics and society*.<sup>12</sup>

A review of the subject learning objectives of *economics and society* reveals that Manz's (2011) activity domains are mainly represented as financial aspects from a commercial perspective, e.g., accounting. Moreover, the subject learning objectives represent a general economic-financial perspective, e.g., taxes, public finances, public revenues and debts. Nevertheless, these learning objectives also focus on individual financial issues, e.g., developing an individual budget plan, explaining advantages and disadvantages of financing methods (Bundesamt für Berufsbildung und Technologie 2011, Anlage Leistungszielkatalog Wirtschaft und Gesellschaft - W&G, p. 13, own translation).

Economic content should be taught in the subject *instruction in language, communication and society (LCS)*<sup>13</sup> in technical vocational schools. The objective of fostering financial literacy is vague. In a survey of Swiss vocational schools, conducted within the project *Fit for Finance*, Aprea et al. (2014) showed that the majority of LCS teachers believe that the organisation of students' finances (e.g., budget preparation) should be part of general school education. The goal of the project is to develop a sound didactical concept of financial literacy in technical VET.

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<sup>5</sup> The Swiss VET is comparable to the German dual system. Apprentices learn at VET schools, at the company, and in industry courses.

<sup>6</sup> <http://www.bfs.admin.ch/bfs/portal/de/index/themen/15/04/00/blank/uebersicht.html> (2015-05-08)

<sup>7</sup> The four activities are earning money, spending money, getting into debt, and saving.

<sup>8</sup> The two activities are spending money and saving.

<sup>9</sup> See details: <http://www.lehrplan.ch>.

<sup>10</sup> As a minor subject and as a major subject

<sup>11</sup> Subject learning objectives are typically presented in greater detail in the major subject *economics and law*.

<sup>12</sup> The subject *economics and society* includes economics, business administration, accounting, and law.

<sup>13</sup> In German: Allgemeinbildender Unterricht (ABU)

- **Summary of Relevance of Teachers' Financial Knowledge**

Reviews of the curricula of compulsory schools, baccalaureate schools, and vocational schools show two aspects. First, learners should be taught financial literacy regardless of their chosen education. Nevertheless, the intensity of financial literacy teaching varies depending on the level and type of the school. Second, teachers who do not explicitly lecture on *economics*, *LCS* or *economics and society* are also instructed to foster financial literacy. Thus, teachers must have financial literacy. Therefore, teachers should be prepared for those curricula requirements with appropriate content knowledge and pedagogical content knowledge. The intended innovation of the *Lehrplan 21* has consequences, especially for teachers who lecture in primary schools (years 1-9, excluding kindergarten). We now present the findings of the status quo of teachers' financial literacy.

## 2.2 Findings on Teachers' Financial Literacy

No studies on teachers' financial literacy have been conducted in Switzerland. The following studies were conducted in the United States and Germany. These studies might provide insight into how teachers' financial literacy is measured and established in other countries.

Using the Test of Economic Literacy (TEL)<sup>14</sup>, Grimes et al. (2007) surveyed the economic literacy of K-12 teachers (N=350) in Mississippi. The TEL consists of assignments in fundamental economic, microeconomic, macroeconomic, and international economic concepts. Elementary teachers' (N=246) scores on each subtest of the TEL and overall are lower than those of high school teachers (N=104). The elementary teachers' scores are comparable with a national student norming sample. Although high school teachers significantly outperform elementary teachers and the student norming group, they do not perform exceptionally well (Grimes et al. 2007, pp. 8, 14). Potential explanations for these findings are as follows: Elementary teachers state a low level of formal training in economics. Elementary teachers have engaged in fewer credit hours in economics than high school teachers (Grimes et al. 2007, p. 9). Teachers become economically literate over time through the compulsory integration of economics in their lectures (Grimes et al. 2007, p. 11). Teachers who have to teach a broad portfolio score lower on the TEL than teachers who teach stand-alone subjects, e.g., *economics* (Grimes et al. 2007, pp. 13, 15).

Lucey and Norton (2011) employed a different approach. They surveyed pre-service teachers at a midwestern university to determine their self-perceived knowledge of retirement concepts and their dispositions towards retirement planning issues. The authors presumed that retirement concepts are part of financial literacy (Lucey and Norton 2011, p. 14). They reported rather low levels of teachers' economic and financial knowledge (Lucey and Norton 2011, p. 14) based on a sample of 211 future teachers<sup>15</sup>. The respondents indicated their individual degree of understanding of items related to knowledge of the following: a) types of retirement plans, b) types of retirement funding, and c) retirement terminology. Furthermore, the authors assessed participants' attitudes concerning a) funding responsibilities, b) challenges and expectations, and c) trust (Lucey and Norton 2011, pp. 17-19). The surveyed teachers reported very low levels of knowledge (Lucey and Norton 2011, p. 19). Lucey and Norton (2011, p. 22) found an association between teachers' self-assessment and need for information to make retirement choices.

In Germany, Bank and Retzmann (2012) conducted an explorative study of teachers' economic literacy. The medium-term objective of the explorative study was to identify the need for further teacher training. Bank and Retzmann (2012, pp. 21-22) made use of the German version of the *Wirtschaftskundlichen Bildungs-Test (WBT)*<sup>16</sup> of the American *Test of Economic Literacy (TEL)* and gathered information on the following four content categories: fundamental economic concepts, microeconomic concepts, macroeconomic concepts and international economic concepts. Participants included 176 lower-secondary<sup>17</sup> school teachers from the German federal states of Saxony, North Rhine-Westphalia, and Schleswig-Holstein. The teachers' test results were similar to those of beginning students<sup>18</sup> in their 3<sup>rd</sup> semester, as reported by Beck and Wuttke (2004) (Bank and Retzmann 2012, p. 44). Although 136 of the teachers taught *economics and business sciences*, only 28 of them studied *economics and business sciences*, and 78 studied *social sciences* (Bank and Retzmann 2012, pp. 116-117). The test results of teachers who studied *economics and business sciences*, *social sciences* or a related subject tended to be higher than those of teachers with an unrelated academic background (Bank and Retzmann 2012, pp. 62-63). The results were similar across teachers, regardless of the subjects that they taught (*economics*

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<sup>14</sup> They primarily used Form A from Walstad and Rebeck (2001).

<sup>15</sup> The authors had a very low return rate of 4.81% (Lucey and Norton 2011, p. 17).

<sup>16</sup> Bank and Retzmann (2012, pp. 40-41) make use of the slightly modified German version of Beck and Krumm (1998), which updated definitions and currencies.

<sup>17</sup> Depending on the federal state, lower-secondary school can be attended at *Hauptschulen*, *Realschulen*, *Mittelschulen* or high school. The baccalaureate level is comparable.

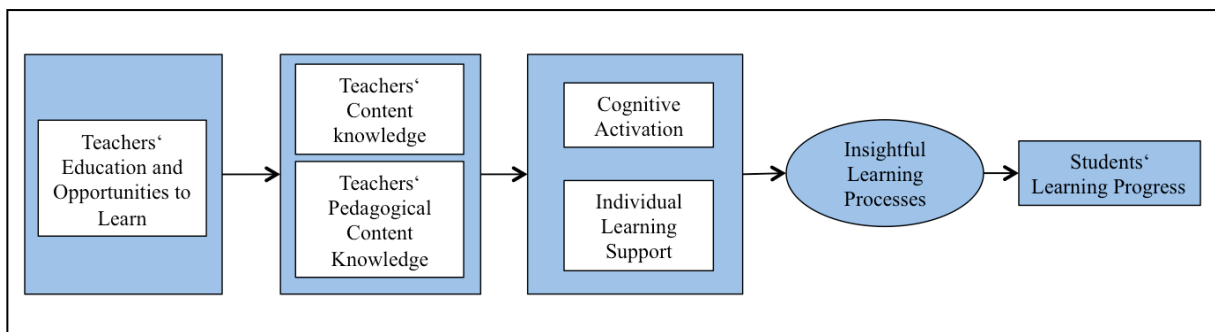
<sup>18</sup> Beck and Wuttke (2004, p. 118) surveyed 767 beginning students for *economics*, *business administration*, and *business education*.

and business sciences, integrated subjects, related subjects, and unrelated subjects); therefore, the subjects that the teachers taught had no systematic influence on the TEL test results (Bank and Retzmann 2012, pp. 63-64).<sup>19</sup>

We assume that analogous research in Switzerland would have similar results. Teachers' economic and especially financial literacy in Switzerland would depend on the grade level of the school and type of school where they taught. Teachers' financial literacy should be more distinctive if they teach older learners at more specific types of schools. Furthermore, teachers' training, education and formal opportunities to learn could influence their financial literacy. If a teacher has preparatory training in *economics* or *finance* but does not use it, his/her financial literacy could be lower than that of those who have less preparatory training but who have intensively taught in this area. The next section illustrates how teachers' financial literacy can influence learners.

### 2.3 Findings on Teachers' Knowledge and Students' Achievement

In terms of the significance of teaching and learning research, Baumert and Kunter (2011, p. 163) state that the teachers' knowledge is an important determinant of the instructional quality that can influence learners' development. Nevertheless, they also determine that there is a significant need for research to support this notion. The authors conclude that the students' achievement at secondary school is higher when the teachers' degrees are more advanced. Baumert and Kunter (2011, pp. 181-183) empirically show for the subject *mathematics* that teachers' pedagogical content knowledge, in particular, influences learners' learning progress. Compared to content knowledge, pedagogical content knowledge has a stronger effect on the students' development. Pedagogical content knowledge refers to cognitive activation and individual constructive support for learners. Although the understanding of the subject matter (content knowledge) is vital, it is not sufficient (Baumert and Kunter 2011, pp. 167, 182).<sup>20</sup> Thus, although individual teachers' financial literacy is vital to the development of learners' financial literacy, it is not sufficient. Furthermore, teachers must have pedagogical content knowledge to teach specific target groups about financial topics and to develop a meaningful methodology that promotes students' knowledge. **Fig. 1** shows the relationship between teachers' education, teachers' knowledge, instruction, and students' achievement.



**Fig. 1** Teachers' knowledge and students' achievement<sup>21</sup>

**Fig. 1** shows that teachers' opportunities to learn serve as sources for their development of content knowledge and pedagogical content knowledge (Kunter et al. 2011, p. 59). Opportunities to learn depend on individual prerequisites and context. Within the study *Mathematics Teaching in the 21<sup>st</sup> Century (MT21)*, Blömeke et al. (2010) present empirical findings for the subject *mathematics*. Future secondary mathematics teachers in countries that focus on teaching one subject have a broader mathematical content knowledge than those in countries that focus on teaching more than one subject. One reason for this result is the more intensive formal study time provided in one-subject studies. Mathematical learning opportunities correlate positively with teachers' mathematical test scores and mathematical content knowledge. However, in mathematical pedagogical content learning opportunities, there is no forecasting of mathematical pedagogical content knowledge.<sup>22</sup> Content and pedagogical content learning opportunities as well as content and mathematical pedagogical content

<sup>19</sup> Regarding the differences between the teachers' field of study and the subjects that they taught, the authors recommend that the results be interpreted with caution because related and unrelated subjects are represented by only two and four teachers, respectively.

<sup>20</sup> Baumert and Kunter (2011, pp. 182-183) show that content and pedagogical content knowledge correlate but have different functions for students' achievement. Increased content knowledge leads to more demanding tasks on a curricular basis. Pedagogical content knowledge almost only influences cognitive activation and individual constructive support.

<sup>21</sup> Own illustration referring to COACTIV (Kunter et al. 2011, p. 59).

<sup>22</sup> According to the authors, this can be traced to a different conceptualization of mathematical and pedagogical mathematical content knowledge.

knowledge are positively correlated among pre-service teachers. This result corresponds to Grimes et al. (2007) and Bank and Retzmann's (2012) empirical findings on teachers' economic literacy and formal levels of teacher education, as presented in section 2.2.

In summary, the findings presented in this chapter indicate that teachers' learning opportunities can influence their content and pedagogical content knowledge regarding financial literacy. Moreover, teachers' knowledge of financial literacy can be a predictor of students' financial literacy. In this respect, the following section describes teachers' learning opportunities in the German-speaking part of Switzerland and presents assumptions regarding teachers' financial literacy.

### 3 Teachers' Opportunities to Learn in Switzerland

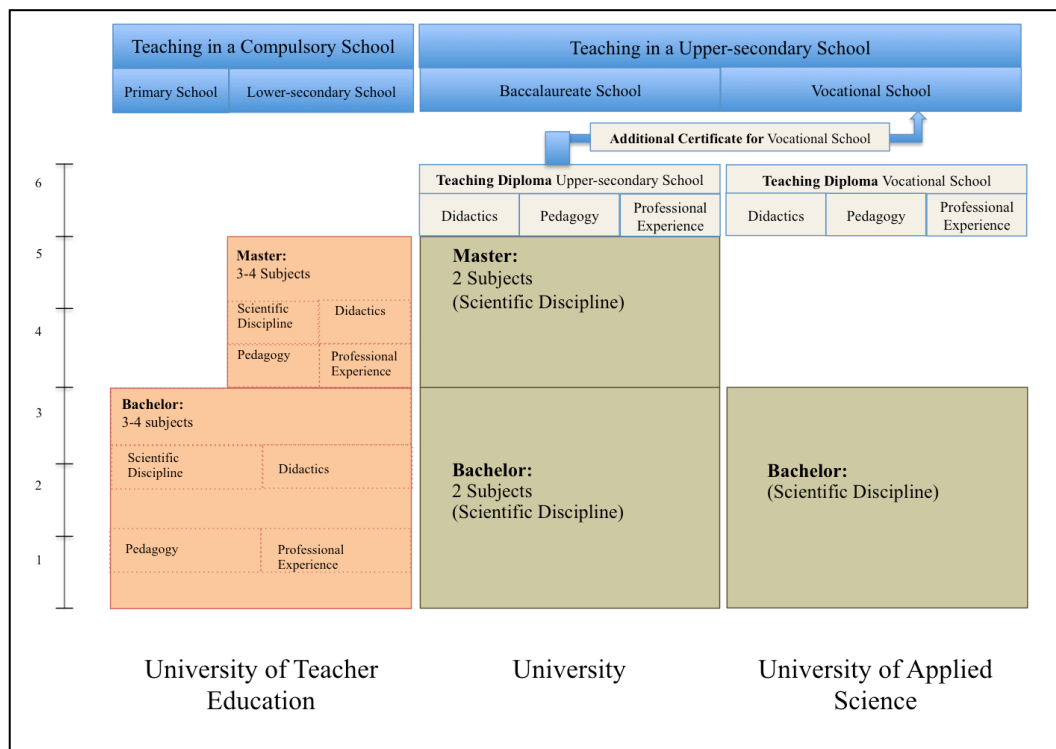
#### 3.1 Remarks on Swiss Teachers' Education

Criblez (2012) describes the history of Swiss teacher training in detail. As noted in the introduction, since the 1990s, these reform efforts are highly interlinked with reforms in general education and are not yet finalized. Eberle et al. (2009) provide an overview of the status of the reforms in teacher education.

According to the Swiss Conference of Cantonal Ministers of Education (EDK), a federal or federally recognised cantonal graduation certificate (baccalaureate) generally allows graduates to enter a teaching degree program in Switzerland. However, the cantons still allow alternative approaches to the courses of study for primary and lower-secondary school at the universities of teacher education (cp. Hofacher and Rhyn 2008, pp. 47-48; Lehmann et al. 2007, p. 20); Lehmann and Criblez (2007, p. 380). In addition, the shortage of teachers enables people with various educational backgrounds to switch careers and join the teaching profession from other fields (Swiss Coordination Centre for Research in Education (SCCRE) 2014, p. 233). These facts make it even more difficult to compare teachers' training paths and opportunities to learn.

Fig. 2 provides an overview of the three main pathways to becoming a teacher at a compulsory, baccalaureate or vocational school. For pragmatic reasons, we describe the status quo of teacher education in the German-speaking part of Switzerland.

Fig. 2 Main Pathways of Teachers' Education in Switzerland (own illustration)



As shown in Fig. 2, teacher training for compulsory schools has only one phase. Unlike in Germany, teachers do not have a separate traineeship that focuses on teaching practices and subject-related didactical training (*Referendariat*). In Switzerland, these contents are integrated into the bachelor's and master's degrees. For primary and lower-secondary school, the teachers are generally trained as generalists who can teach several

subjects (Oser et al. 2010, p. 10). Compulsory school education typically follows the parallel or integrated model, in which the contents concerning content knowledge and professional practice are related to each other (Eberle et al. 2009, p. 2).

A consecutive study model is valid for teacher training for baccalaureate and vocational schools. A one-year teaching diploma program follows technical and scientific education. This second phase is not comparable to the German *Referendariat* because both the professional practice and general education and subject-related didactical training are included. Therefore, these teachers are more likely to become specialists in two subjects (Oser et al. 2010, p. 10).

Both admission to the university courses and the course structure itself vary considerably, as do the content requirements for a teaching degree in schools of different levels and types. Teachers have – depending on the school level – different learning opportunities to develop their content knowledge and pedagogical content knowledge regarding financial literacy. To teach in vocational schools, content knowledge at a university of applied sciences level is sufficient. However, teachers at baccalaureate schools must meet the highest professional standards in terms of content knowledge; they must have a university master's degree in the subject that they teach. However, the subject-related didactical content is integrated into the pedagogical-didactical training, which requires a total of 60 ECTS.

Due to the various models of teacher training for the different school levels and school types, it is difficult to assess the effectiveness of teacher education and training. We also have to consider that teacher education is horizontally and vertically flexible and that teachers have different levels of professional expertise and socialisation. Therefore, three main pathways are presented in detail, and the financial literacy learning opportunities are further described below. Only teachers who teach financial literacy as a part of the school curricula are considered.

### 3.2 *Compulsory School Teachers*

Compulsory schools in Switzerland include preschool<sup>23</sup>, primary school<sup>24</sup> and lower-secondary school<sup>25</sup>. At the primary school level – in most of the German-speaking cantons – teachers receive education in seven subjects (Hofacher and Rhyn 2008, p. 30). Teachers at the primary school level become qualified to engage in professional work after they receive a bachelor's degree from a university of teacher education (Eberle et al. 2009, p. 2). Teachers at secondary schools are typically trained to teach two to five subjects (Hofacher and Rhyn 2008, p. 31) and normally need a master's degree.

Teacher training for compulsory schools combines subject-specific or subject-related didactical, pedagogical, and practical aspects of study. As Lehmann and Criblez (2007, pp. 384-385) and the Swiss Education Report 2014 (Swiss Coordination Centre for Research in Education (SCCRE) 2014, p. 232) report, subject-specific aspects of study are quantitatively unevenly distributed across educational institutions. On average, 38 percent<sup>26</sup> of the aspects of study have subject-specific or subject-related didactical contents (Lehmann and Criblez 2007, pp. 384-385). In addition to the research results outlined in section 2.2, the educational practice at universities of teacher education suggests that due to the broad alignment of subjects, compulsory school teachers have few opportunities to gain financial literacy and that professional and subject-related didactical financial literacy is not well promoted.

### 3.3 *Baccalaureate School Teachers*

In the German-speaking part of Switzerland as well as in Germany, teachers at baccalaureate schools primarily receive their education at universities. However, unlike in Germany, in Switzerland, teachers acquire a master's degree in one or two subjects first<sup>27</sup> and then complete the didactical-methodical training for these subjects through their teaching diploma program (**Fig. 2**). To be admitted to the teaching diploma program in *economics and law* at baccalaureate schools, candidates are required to have a master's degree in economics or in law. During the teaching diploma program, inter alia, subject-related didactical contents are taught. Teaching diploma programs take one year<sup>28</sup> and consist of 60 ECTS<sup>29</sup>.

Teachers of *economics and law* with a master's degree in economics acquire sound economic knowledge that is supplemented by subject-related didactical knowledge during the teaching diploma program. Candidates

<sup>23</sup> This level often comprises two years of kindergarten (nursery school).

<sup>24</sup> The duration of primary school is typically six years.

<sup>25</sup> Lower-secondary school includes, in many cantons, years seven to nine and is at the completion of compulsory school (Schweizerische Konferenz der kantonalen Erziehungsdirektoren (EDK) 1999).

<sup>26</sup> This percentage also depends on the number of subjects for which the teaching qualification is obtained.

<sup>27</sup> They are allowed to start teacher training before acquiring a master's degree, but the training cannot be completed prior to the conferring of the degree.

<sup>28</sup> The actual duration of study can vary based on whether the students already teach and/or have to acquire further credit points in economics, business administration, and/or law.

<sup>29</sup> 1 Credit point denotes 30 working hours.

who hold a master's in law, which is the other path for admission to teaching diploma programs, are required to earn 90 ECTS.

Thus, teachers who opt for the subject *economics and law* at the high school level have more differentiated opportunities to learn, and they are able to fall back on broad economic and financial literacy in their teaching practice. The opportunities to learn financial literacy seem to be comparable across academic institutions (see details in section 3.5).

### 3.4 Vocational School Teachers

Although formal opportunities to learn are clearly circumscribed for teachers at baccalaureate schools, a rather heterogeneous picture appears for vocational school teachers. These teachers are trained at universities of teacher education, partially in cooperation with a university. Furthermore, cantonal institutions and third-party suppliers can award teaching certificates in vocational education and training (Lehmann et al. 2007, pp. 11-12). Teachers of *economics and society* typically receive an education that is similar to that of teachers at baccalaureate schools (Lehmann et al. 2007, p. 12). Teachers of *LCS* have different opportunities to learn based on their previous qualifications (cp. Der Schweizerische Bundesrat 2015, Artikel 46). However, these teachers are not required to have a comprehensive economic education and have low levels of didactic knowledge concerning financial literacy.

To learn more about the real education and professional pathways of teachers at commercial vocational schools, 94 teachers<sup>30</sup> of *economics and society* were asked about their professional education and working experience. Eighty teachers provided detailed information about their education and occupation pathways (Fig. 3). The majority of the questioned teachers had attended a university (n=64). In addition, most of the teachers held a master's degree from a university. Some teachers (n=16) chose an alternative education, i.e., at a university of applied sciences.

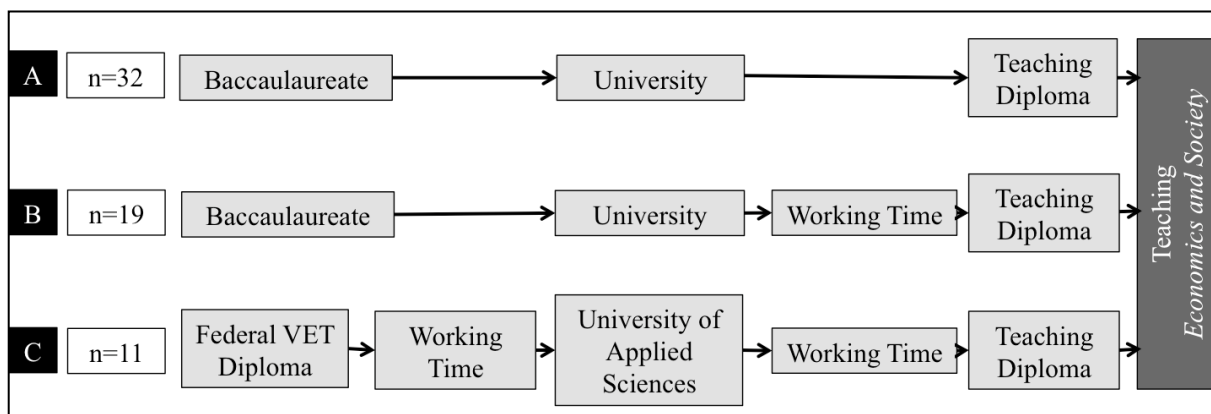


Fig. 3 Education and professional pathways of commercial vocational school teachers

The most common pathway to teaching *economics and society* (A) is from a baccaulaureate school to a master's degree from a university to an integrated or consecutive teaching diploma.<sup>31</sup> The second most frequent pathway (B) is from the baccaulaureate school to a master's degree at a university. Subjects such as *business administration* or *law* were chosen. These teachers chose to obtain a teaching diploma only after they accrued work experience. Some teachers reported a third education and professional pathway (C). This pathway is rather practically oriented; it starts from a commercial vocational education to training via working experience and then to universities of applied sciences. Most teachers who attended universities of applied sciences acquired a bachelor's degree. It also appears that they acquired a teaching diploma only after they accrued work experience. Teachers also reported other individual paths beyond these three pathways, but the pathways shown here are typical and apply to the majority of teachers.

In summary, the majority of the surveyed commercial vocational school teachers had different opportunities to learn at a university level. Nearly one-quarter of the teachers completed an alternative education with different opportunities to acquire economic and financial literacy. The comparison of teachers' opportunities

<sup>30</sup> Due to their randomly selected sample of classes, these teachers provide a relatively representative impression of teachers' real education and professional pathways.

<sup>31</sup> Thirty-two teachers who immediately began teaching *economics and society* after their economic studies and later completed their teaching diploma were also considered. Thus, teachers who completed vocational education and training before they completed their baccaulaureate education were included.

to learn is generally a great challenge, particularly when considering opportunities to learn economic and financial contents. Hence, a curriculum analysis that is applicable to the majority of teachers at baccalaureate schools and commercial vocational schools is described below.

### 3.5 Comparison of Subject-specific Education for Teachers at Baccalaureate and Vocational Schools

To learn more about the learning opportunities of teachers who teach financial literacy in their lessons, we conducted a curriculum analysis. We limited the analysis to teachers of *economics and law* in baccalaureate schools and *economics and society* in commercial vocational schools because teachers who teach *economics and society* at vocational schools typically present the consecutive study model and educational pathways that are similar to those of teachers at baccalaureate schools (Lehmann et al. 2007, p. 12). We did not consider other teachers (e.g., elementary school and technical vocational school), as such an analysis would be rather complicated and extend beyond the scope of this study.<sup>32</sup> The University of St. Gallen, University of Zurich, University of Berne and Zurich University of Applied Sciences were selected for this analysis because they have a large number of students who are enrolled in *economics* and *business administration* programs. Financial literacy education may be particularly embedded in economics topics and lessons. Moreover, this curriculum analysis<sup>33</sup> focuses on compulsory economics modules of the bachelor's-level studies at the mentioned three universities and university of applied sciences. The following aspects have to be considered when comparing curricula:

1. Modules with the same title can focus on different contents.
2. Modules with different titles, however, can focus on similar content.
3. Contents of small modules can be accumulated into a larger module.
4. Different ECTS points can be acquired with comparable study contents.
5. There is no valid structure to systematise the economics contents.

Hence, the module titles and contents were compared. To collect and compare similar modules and contents, we performed objective clustering according to the textbooks *Economics* (Samuelson and Nordhaus) and *Volkswirtschaft verstehen* (Beck). The curriculum analysis of economic contents in Swiss compulsory bachelor's programs shows considerable overlap. Microeconomic subjects, such as *consumer behaviour*, *production and cost theory* and *markets and price determination*, are offered in the compulsory bachelor's program in all four institutions. Macroeconomic subjects, such as *(international) economics*, *labour market and unemployment*, *economic cycles*, and *monetary and fiscal policies*, are also central topics in all institutions.<sup>34</sup> However, the credit hours devoted to the topics vary by institution. Although the curriculum analysis was rather discipline oriented, Manz's (2011) activity domains of *earning money*, *spending money*, *getting into debt*, *saving and investing*, and *dealing with risks*, and *basic economic knowledge* can be found in all bachelor's programs, albeit on an academic level.

## 4 Summary

The paper shows that financial literacy or aspects of financial literacy are promoted at multiple levels and in multiple types of schools in Switzerland. As described, the quantity and quality of economics and financial literacy education varies across Swiss schools. Teachers' financial literacy can be crucial for the development of students' financial literacy, as the empirical findings of Baumert and Kunter (2011) indicate. There is an overall lack of findings on the effect of teachers' activity on learners' achievement in Switzerland (Swiss Coordination Centre for Research in Education (SCCRE) 2014, p. 235)<sup>35</sup>.

Moreover, teachers' formal opportunities to learn at a university of applied science or a university might influence their knowledge. Teachers may develop their financial literacy during their own education and, as the findings of Grimes et al. (2007) suggest, through teaching. The presented empirical findings concerning teachers' financial knowledge, the demands on teachers and teachers' learning opportunities suggest that economic and financial literacy varies widely across teachers in Switzerland. However, the presumptions made in this article

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<sup>32</sup> As the analysis of the school curricula has shown, teachers of *mathematics*, *social and natural sciences*, *media* and *IT* should be included in this analysis.

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<sup>34</sup> The only exception is *monetary and fiscal policies*, which is not explicitly part of the compulsory program of Zurich University of Applied Sciences (ZHAW).

<sup>35</sup> Schweizerische Koordinationsstelle für Bildungsforschung (SKBF) (2014, p. 241).

and the curriculum analysis cannot account for the way in which teachers have taken advantage of learning opportunities, which can only be assessed through the direct measurement of teachers' content knowledge and pedagogical content knowledge of financial literacy. There is a lack of such empirical findings and of research on the corresponding influence of teachers' chosen pathways in Switzerland. Therefore, the following research gaps should be addressed in future studies:

- a. The degree to which the intended financial literacy education is implemented in different school types and on different levels should be measured.
- b. Teachers' financial literacy should be measured at different school levels and in different types of schools.
- c. The influence of teachers' different opportunities to learn on their knowledge should be investigated. In addition to content knowledge, the pedagogical content knowledge of teachers should be considered.
- d. The relationship between teachers' and students' financial literacy should be examined.

The Swiss Leading House LINCA will make an initial contribution to closing these research gaps for teachers and learners of commercial vocational schools. The first empirical results should be available by the end of 2015.

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