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Exploring Digital Competence in Foreign Language Education: An Integrated SELFIE and SELFIE for TEACHERS Study of Bulgarian Secondary School Teachers

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Abstract

This study explores the digital competence of foreign language teachers in Bulgarian secondary education by focusing on the institutional context of which they are a part, the strengths and gaps of their competence, and their levels of competence. It draws upon empirical data that were collected and analyzed within an integrated, dual-instrument framework, combining the SELFIE (*Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies*) and SELFIE for TEACHERS (*Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies for Teachers*) EU-aligned assessment tools. The results from the questionnaire data show that the foreign language teachers state that they work in a relatively good technological environment and evaluate the usage of digital technologies for teaching and communication purposes within the school context as a salient aspect of their digital competence. The results also reveal three areas in the study participants' digital competence that are in need of improvement: (1) empowering learners/personalizing the educational process, (2) assessment and (3) facilitating learners' digital competence. In addition, the findings indicate that the foreign language educators rate their digital competence at a low to medium level. By blending institutional and teacher-oriented perspectives into a single integrated study of Bulgarian secondary school foreign language teachers, this investigation extends the existing research and makes evidence-based recommendations for institutional capacity building, teacher education policy and targeted professional development aimed at improving the educators' digital competence.

Keywords: digital competence; foreign language educators; Bulgarian secondary education; SELFIE; SELFIE for TEACHERS

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1. Introduction

Present-day digitalized and globalized societies require increasing amounts of digital knowledge and capability, so that institutions and citizens can function effectively in their sociocultural and economic life. Within a European context, this requirement has led to the emergence of widely used policy-based frameworks for developing digital competence, such as DigCompOrg: *A European Framework for Digitally Competent Educational Organisations* [1] for organizations and DigCompEdu: *Digital Competence Framework for Educators* [2]

for educators. On the basis of these two frameworks, two specific self-assessment instruments have been designed to provide institutions and educators with tools for exploring and measuring their own digital capacity, i.e., the ability to employ digital technologies to accomplish their goals and perform tasks in today's digitalized communities: SELFIE (*Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies*) [3] and SELFIE for TEACHERS (*Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies for Teachers*) [4]; the former is based on DigCompOrg, and the latter on DigCompEdu. These instruments have also been used extensively by researchers as tools for gathering empirical data which allow for examination of the strengths, gaps and levels of the digital capacity demonstrated by both institutions and educators.

1.1. Present State of Research in the Field

Research in different European countries has employed the DigCompOrg and DigCompEdu frameworks, as well as the SELFIE and SELFIE for TEACHERS tools based on them, to collect data on various aspects of the digital capacity of both institutions [5–12] and educators [13–20]. These studies have explored either the digital maturity of educational institutions (i.e., their ability to integrate digital technologies effectively into their operations and strategic planning so as to ensure sustainable growth and better educational processes) or the digital competence of educators (i.e., their ability to incorporate digital technologies successfully into their practices so as to enhance the teaching and learning processes), thus linking the term 'digital maturity' with institutional context and 'digital competence' with individual educators. With respect to the digital maturity of schools, a large-scale study conducted in different European countries establishes that schools' institutional contexts tend to contain inadequate infrastructure, which lacks reliable digital devices, Internet connection or technical support [11]. Other studies, however, reveal more positive results by showing progress in the sphere of technological infrastructure, leadership support and educational resources [6,9]. When it comes to the digital competence of educators, most investigations seem to bring to the fore findings highlighting areas of teachers' competence that are in need of improvement, such as collaboration, assessment, empowering learners and facilitating their digital competence [14,19–21], and fewer studies report results that reveal the positive aspects of educators' competence, such as using digital technologies for professional engagement and selecting digital educational resources [20]. In general, research establishes that educators' digital competence covers mostly a low or medium level [13,18,22–26], which appears to be insufficient in relation to the effective incorporation of digital technologies into educational activities and indicates the need for further professional development in relation to enhancing educators' digital knowledge and skills. Narrowing down the discussion exclusively to the Bulgarian educational context, the research has established similar results showing that school teachers of different subjects rate their digital competence at a basic or medium level [27,28], thus revealing the educators' lack of confidence and thus their need for further development of their competence in terms of integrating digital technologies into the teaching and learning process. Studies have shown that even when Bulgarian teachers demonstrate confidence in using technologies, their digital competence is below the European average [29].

The results reported in the preceding paragraph, especially those establishing an insufficient level of educators' digital competence and areas in need of improvement, come across as being problematic in light of the existing research highlighting the many benefits of incorporating digital technologies into the educational process. It has been found that the effective integration of technologies into education enhances the learning process, facilitates the acquisition of subject-specific knowledge and skills, boosts the development of creativity and critical thinking skills, increases engagement in the learning process and

offers access to diversified pedagogical activities, educational resources, and channels for communication, collaboration and feedback [30,31]. These benefits are particularly evident in foreign language education, where digital technologies provide advantages such as access to authentic language materials and facilitation of the development of language skills [32–38]. In this respect, low and insufficient digital competence on the part of teachers is likely to result in ineffective teaching practices and poor learners' outcomes. This, in turn, could prevent learners from inclusion and active participation in the social, cultural and economic life of contemporary communities, which are becoming increasingly more digitalized and multilingual.

1.2. Aims of the Study

The literature review on European digital capacity research clearly shows that the DigCompOrg/DigCompEdu frameworks and their associated SELFIE/SELFIE for TEACHERS tools have been employed extensively to offer insights into issues related to institutional context and teacher competence. However, this growing body of research is marked by some limitations. First and foremost, digital capacity studies tend to focus on institutional context and teacher competence as two separate categories which to a large extent function in isolation. Whereas DigCompOrg/SELFIE investigations describe the digital elements of institutional environments, their DigCompEdu/SELFIE for TEACHERS counterparts present the strengths, weaknesses and levels of teachers' digital competence. Relatively little attention has been paid to the relationship between institutional context and teacher competence and the manner in which they coexist in practice. The current study addresses this gap and fills a scholarly niche at the crossing line between institutional context investigations and teacher competence analyses by merging the two assessment tools (SELFIE and SELFIE for TEACHERS) and employing an integrated design to investigate the digital competence of educators only. Drawing upon a dual-instrument analytic framework, this study sets itself the goal of investigating both the professional environment in which educators function and their self-perceived competence. More specifically, the present investigation aims to explore the digital competence of foreign language teachers in Bulgarian secondary education. Taking into consideration the key function digital technologies serve to enable access to authentic materials and provide support for the acquisition of language knowledge and skills, as well as the scarcity of Bulgarian research into the digital abilities of foreign language educators, the digital competence of foreign language teachers in the Bulgarian educational context emerges as a crucial and, to a large extent, underresearched area. To achieve its goals, the present investigation draws upon the following three research questions:

1. How do the foreign language teachers evaluate the institutional context in which they develop and demonstrate their digital competence?
2. How do they perceive the strengths and gaps of their digital competence?
3. What are the teachers' self-evaluated levels of digital competence?

Given its research focus and objectives, this study contributes to the existing research on teachers' digital competence in three main ways. First, by applying its dual-instrument SELFIE and SELFIE for TEACHERS analytic framework, it provides an enriched and more nuanced understanding of the concept of 'digital competence', blending institutional and teacher-oriented perspectives into a single integrated investigation to identify the salient aspects of the professional context in which Bulgarian secondary school foreign language teachers operate, as well as the strengths, gaps and levels of their digital competence. Second, the present study provides empirical evidence for enhancing institutional digital capacity, developing teacher education policies and designing targeted, needs-oriented professional teacher training programs that are specifically related to improving educators'

digital competence. Third, by shifting the focus to the system of Bulgarian secondary education, this investigation extends national digital capacity studies and at the same time enriches the existing broader research by offering insights from a sociocultural context that has been under-represented in the existing European body of literature.

To avoid any terminological ambiguities, it is important to note that in what follows, 'digital competence' is used as a term related to educators' ability to integrate digital technologies into the teaching and learning process. It is a notion which covers the knowledge, skills and attitudes necessary for effectively using digital technologies in the educational process [39]. The term 'digital technologies' in itself is used as a cover term for various online/computer networks or services, software, hardware, and digital content, an approach adopted in the DigCompEdu framework [2] (p. 90).

2. Methodology

This study is part of a larger national project of Sofia University "St. Kliment Ohridski" entitled SUMMIT (*Sofia University Marking Momentum for Innovation and Technological Transfer*), which is financed by the European Union—NextGenerationEU, through the National Recovery and Resilience Plan of the Republic of Bulgaria, project No. BG-RRP-2.004-0008 (https://summit.uni-sofia.bg/, accessed on 10 October 2025), and supported by the Bulgarian Ministry of Education and Science. The larger project was aimed at exploring the actual state of digitalization of Bulgarian secondary education and, more specifically, the pedagogical integration of digital technologies in the process of teaching and learning, as well as the digital competence of teachers and learners. Part of the empirical data analyzed in the larger project were collected from a carefully drawn sample of 30 schools from different regions in Bulgaria, covering both lower secondary education (grades 5 to 7) and higher secondary education (grades 8 to 12). The 30 schools constitute an analytic micro sample that was purposefully chosen as a subset of a nationally representative stratified cluster sample of 359 general educational schools. The national sample was designed to reflect the structure of all Bulgarian schools, excluding vocational schools and special educational support centers. Sampling followed a two-stage stratified cluster procedure with probability proportional to size (PPS), stratified by four criteria: administrative region (all 28 NUTS 3 units), type of settlement (village, town, regional center), school type (lower secondary, higher secondary, etc.) and school size (small: $\leq$100 students; medium: 101–300; large: >300). The micro sample followed the logic of the national sample and was based on the same stratification principles. It was adapted to seven administrative regions (NUTS 2 plus Sofia City) and its representation was balanced by settlement type and school level, while 10 schools were selected in each size category (small, medium, large). Yet, some selection bias remains possible. Schools established recently or undergoing structural changes may be underrepresented because of the administrative data available at the time of sampling. Similarly, schools with limited digital resources may not be represented well in a sample due to structural indicators. It is important to note that the data collection in the 30 schools took place in the context of national policies intended to support the digitalization of Bulgarian educational institutions. In recent years, the government has invested in digital infrastructure, introduced compulsory electronic registers and joined several European programs promoting STEM education and digital transformation. These initiatives have improved access to digital technologies in schools and define the institutional background within which the 30 schools operate. As a result, the schools reflect both the structural diversity of the Bulgarian school system and the conditions shaped by ongoing national digitalization efforts.

The data collection period was the first term of the 2024–2025 school year, that is, from September 2024 to February 2025, and the data were gathered through questionnaires,

interviews and observation of classes. Because of its specific scope, the current study explores the empirical data collected through questionnaires from the foreign language teachers who participated in the larger SUMMIT project. The empirical data analyzed in this study were collected from the foreign language teachers through two questionnaires. The first questionnaire, entitled SELFIE (*Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies*), was based on the DigCompOrg framework [1]. It is a self-assessment tool focusing on the digital maturity of school institutions by placing emphasis on several areas: infrastructure and equipment, school leadership, continuing professional development of teachers, teacher digital competence (using digital technologies in teaching and assessing educational content), student digital competence, and factors inhibiting the integration of technologies into the teaching and learning process (for more details, see [3]). Although the SELFIE tool is aimed at investigating the digital maturity of school institutions in general, it can also be used to explore aspects of the digital competence of teachers working within the context of school institutions. The second questionnaire, SELFIE for TEACHERS (*Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies for Teachers*), drew upon the DigCompEdu model [2]. The SELFIE for TEACHERS questionnaire is a self-assessment tool for measuring the digital competence of teachers in six areas: professional engagement, digital resources, teaching and learning, assessment, empowering learners and facilitating learners' digital competence (for further information, see [4,40]). The measurement relies upon a progressive scale consisting of six levels: A1 newcomer (newcomers are aware that digital technologies can support and improve teaching/professional practices), A2 explorer (explorers have tried incorporating digital technologies into their teaching/professional practices), B1 integrator (integrators use digital technologies in their teaching/professional practices), B2 expert (experts analyze and modify digital technologies to improve their teaching/professional practices), C1 leader (leaders support and motivate others to use digital technologies for improving teaching/professional practices), and C2 pioneer (pioneers initiate innovations in using digital technologies for improving teaching/professional practices) [2] (p. 30).

For the purposes of this study, the SELFIE and the SELFIE for TEACHERS questionnaires were modified in a number of ways. First, they were translated into Bulgarian. Second, the elements of the original tools supporting self-reflection, i.e., the feedback reports, were omitted so that the questionnaires could serve the function of evaluation and measurement. Third, an additional point was added to the evaluation scales in the two questionnaires to provide the informants with the opportunity to opt out of an answer. As a result, the respondents were presented with statements in the SELFIE questionnaire, which they had to evaluate on a 5-point Likert scale (5—strongly agree; 4—agree; 3—partially agree; 2—disagree; 1—strongly disagree), with the additional option of '0—irrelevant'. In the SELFIE for TEACHERS questionnaire, the informants had to evaluate proficiency statements starting with 'I am aware…', 'I have tried…', 'I use…', 'I analyze/modify…', 'I support/motivate…' and 'I initiate/contribute…', which can be mapped to the six levels of A1 to C2, discussed above, and they had an additional answer: 'none of the above' (for more information on the Bulgarian adaptation of the questionnaire, see [19,28]).

The data collection process went through two stages. During stage One, November–December 2024, the informants in this study were asked to complete the SELFIE questionnaire. The objective was to gather information about the institutional context in which the respondents develop and can demonstrate their digital competence, as well as to identify its strengths and gaps. During stage Two, January 2025, the respondents filled in the SELFIE for TEACHERS questionnaire. The goal in this case was to collect data on the levels of the respondents' digital competence. It is important to note that the two questionnaires were sent online through the SurveyMonkey platform to all teachers in the 30 schools that

participated in the study. A total of 73 foreign language teachers completed the SELFIE questionnaire and 45 foreign language teachers completed the SELFIE for TEACHERS questionnaire. As the two questionnaires were anonymous, the answers of individual teachers to the SELFIE questionnaire could not be linked to their answers to the SELFIE for TEACHERS questionnaire, and they were processed separately. The profiles of the informants who filled in the two questionnaires are summarized in Table 1, below:

Table 1. Profile of the informants.

Category	Subcategory	SELFIE Profile of the Informants (N = 73)	SELFIE for TEACHERS Profile of the Informants (N = 45)
Age	20–29	16%	16%
	30–39	14%	18%
	40–49	33%	38%
	50–59	30%	24%
	60–70	7%	4%
Gender	Men	12%	9%
	Women	82%	82%
	Unspecified	6%	9%
Educational degree	Professional higher education	0%	2%
	BA	20%	20%
	MA	77%	73%
	PhD	3%	5%
Work experience	0–5 years	23%	36%
	6–15 years	27%	27%
	16–25 years	22%	22%
	25+ years	28%	15%
Subject taught at school	Foreign language	14%	9%
	English	56%	62%
	French	20%	16%
	Other languages	10%	13%
Secondary education level	Lower secondary education	27%	40%
	Higer secondary education	58%	42%
	Both levels	15%	18%

As can be seen in Table 1, most of the informants who completed the SELFIE questionnaire are women between the ages of 40 and 60, with an MA degree, teaching English in higher secondary education, with different durations of work experience. This is also valid for the profile of the informants who completed the SELFIE for TEACHERS questionnaire with a minor difference: it also contains a relatively big percentage of respondents who teach in lower secondary education. Indeed, the majority of the informants in the present investigation teach English as a foreign language, which is not surprising given the fact that the growth of English as an international language and, more specifically, its global influence and professional value have turned it into a favored first foreign language in the Bulgarian educational context.

To determine the validity and generalizability of this study, an estimation of the approximate size and distribution of the informants' population was performed. Since concrete data on the number of foreign language teachers from each school were not available prior to data collection, the approximate population size was calculated by taking into account national curriculum standards and teaching workload norms. Foreign language instruction in Bulgaria is compulsory from second grade onwards, with an average of 2–3 weekly teaching hours in both lower and upper secondary education. In addition, one full-time equivalent teaching position corresponds to approximately 18–20 h of instruction per week (about 720 h annually). Applying these standards to the school size categories represented in the microsample of 30 schools (small: $\leq$100 students; medium: 101–300; large: >300) resulted in an estimated average of about 1 full-time teaching position in small schools, 2–3 in medium schools and 4–5 in large schools. With 10 schools in each size category, the total estimated pool of foreign language teachers in the 30 schools was approximately 80 individuals. Of the estimated 80 foreign language teachers, 73 filled in the SELFIE questionnaire, which represents a response rate of approximately 91%, and 45 completed the SELFIE for TEACHERS questionnaire, which is equivalent to a response rate of about 56%. The difference between these response rates could be due to two main reasons. Whereas the SELFIE tool focused on the broader institutional context, the SELFIE for TEACHERS instrument required a more analytic, critical and introspective approach toward a teacher's own digital competence. In addition, at the end of the data collection period, some of the informants that completed the two questionnaires participated in interviews and class observations, which might have resulted in greater amounts of fatigue. Despite the lower response rate for the SELFIE for TEACHERS questionnaire, the profile of the respondents who completed it overlaps to a great extent with that of the informants who filled in the SELFIE questionnaire, which lowers the risk of distorting the results and lends validity to the analysis performed in this study.

The analysis of the empirical data collected through the two questionnaires (SELFIE and SELFIE for TEACHERS) followed the method of frequency distribution, with a focus on the score with the highest frequency of responses (i.e., the mode), which goes through the following stages: (1) counting the number of responses given for each statement in the questionnaires; (2) transforming the obtained numbers into percentages; (3) identifying the most common responses, i.e., the statements that were most frequently chosen by the informants; (4) establishing tendencies with respect to the informants' views, attitudes and preferences, based on the most common responses. This methodology was chosen for the analysis of the collected empirical data, because it is suitable for establishing the dominant stances that the examined group of respondents adopt with respect to the main object of investigation in this study, i.e., the respondents' digital competence, which in itself can help us to draw conclusions about its salient features and, more specifically, positive and negative aspects. Therefore, in what follows, the presentation of the results contains mostly analysis of the questionnaire statements which obtained the scores with the highest frequency of responses.

3. Results

3.1. SELFIE Questionnaire Results

The first section of the SELFIE questionnaire contains a number of statements related to the presence of suitable and reliable infrastructure/equipment (such as hardware, software, online resources, Internet access, technical support or physical learning spaces) in the school environment.

The results from the analysis of the informants' answers suggest that they believe that the environment of the school they work in displays relatively good digital features. As can

be seen in Table 2, below, the 'strongly agree' (5) option from the Likert scale is the most common (modal) response that the respondents select in relation to the statement that their school institution offers a suitable, reliable and secure technological infrastructure which can facilitate the process of teaching and learning through digital technologies (36%). In addition, the informants' most frequent responses, concerning the statements that their school offers functioning and up-to-date digital devices for teaching purposes, fast and reliable Internet access, and effective support for solving technical issues, also fall within the 'strongly agree' (5) option: 37%, 52% and 34%, respectively. The strong support that the respondents give to these four statements is further strengthened by the fact that they obtain a high frequency of responses in the neighboring area of 'agree' (4). What is more, the informants' most common response to the assertion that their school institution provides sound data protection for both teachers and students is the 'agree' (4) area (38%), supported by a high frequency of answers in the 'strongly agree' (5) area. However, the respondents seem to take a less positive stance with respect to the remaining statements in this part of the questionnaire.

Table 2. Infrastructure and equipment.

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
Technological infrastructure (In our school, the digital infrastructure supports teaching and learning with digital technologies)	**36%**	29%	33%	1%	1%	0%
Digital devices for teaching (In our school, there are digital devices for me to use for teaching)	**37%**	33%	26%	4%	0%	0%
Internet access (In our school, there is access to the Internet for teaching and learning)	**52%**	30%	17%	1%	0%	0%
Technical support (In our school, technical support is available in case of problems with digital technologies)	**34%**	25%	32%	8%	1%	0%
Data protection (In our school, there are data protection systems in place)	30%	**38%**	22%	4%	2%	4%
Digital devices for learning (In our school, there are school-owned/managed digital devices for students to use when they need them)	15%	**36%**	**36%**	7%	4%	2%
Students bringing their own devices (In our school, students bring and use their own portable devices during lessons)	11%	19%	**44%**	19%	3%	4%
Physical learning spaces (In our school, physical spaces support teaching and learning with digital technologies)	18%	**33%**	32%	15%	2%	0%
Access to specialized digital tools (In our school, students in need of special support have access to assistive technologies)	8%	14%	23%	19%	11%	**25%**
Online libraries and repositories (In our school, there are online libraries or repositories with teaching and learning materials)	5%	4%	**36%**	30%	10%	15%

Note: The bolded frequency is the count for the most common (modal) response category.

As shown in Table 2, the claim that students in the school have access to digital devices (such as laptops and tablets) for learning purposes reaches the 'agree' (4) area (36%), but the neighboring 'partially agree' (3) point receives the same frequency of responses, which indicates that the respondents express a more moderate agreement with this statement. Likewise, the assertion that the school provides physical learning spaces that enhance the process of teaching and learning through digital technologies is located in the 'agree' (4) area of the Likert scale (33%), but it also obtains a high frequency of responses in the 'partially agree' (3) zone, thus bringing to the fore the informants' more moderate position. What is more, the respondents express conflicting opinions in relation to whether or not students bring their own devices (smartphones, tablets, laptops, etc.) to improve the learning process in the classroom: 44% of their responses are located in the 'partially agree' (3) zone, but equal percentages of answers are given to the 'agree' (4) and 'disagree' (5) points in the scale. The statement that students have access to specialized digital tools (such as simplified keyboards, applications for voice recognition or changing speech to text, etc.) is labeled 'irrelevant' (0) (25%) and a high frequency of responses are assigned to the 'partially agree' (3) area. Last but not least, the claim that the school possesses an online library with educational resources falls within the 'partially agree' (3) zone (36%) and a large percentage of the informants' answers cover the 'disagree' (2) and 'strongly disagree' (1) zones (40%), which brings to the fore the informants' negative opinion.

The second part of the SELFIE questionnaire focuses on statements that are related to the role of school leaders in the integration of digital technologies into the school context in general, and into the teaching and learning process in particular.

As shown in Table 3, below, the 'strongly agree' (5) category includes the respondents' belief that they receive support from their school leaders when it comes to using new ways of teaching based on digital technologies (44%), they have the opportunity to discuss the strengths and weaknesses of digital teaching (30%) and apply copyright and licensing rules in the school context (33%). The positive stance that the informants adopt in relation to these three statements is further supported by the high frequency of responses that the claims obtain in the neighboring 'agree' (4) area of the Likert scale. The respondents' position is less positive and certain with respect to the other statements in this section of the questionnaire.

Table 3. Leadership.

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
Digital strategy (In our school, we have a digital strategy)	22%	22%	**40%**	5%	3%	8%
Strategy development with teachers (Our school leaders involve us teachers in the development of the school's digital strategy)	21%	21%	**38%**	12%	1%	7%
New ways of teaching (Our school leaders support me in trying out new ways of teaching with digital technologies)	**44%**	21%	27%	8%	0%	0%
Self-assessment of digital teaching (In our school, we review our progress in teaching and learning with digital technologies)	14%	27%	**37%**	17%	4%	1%
Strengths and weaknesses of digital teaching (In our school, we discuss the advantages and disadvantages of teaching and learning with digital technologies)	**30%**	27%	29%	10%	1%	3%

Table 3. *Cont.*

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
Partnership with other institutions (In our school, we use digital technologies in our partnerships with other organizations)	22%	25%	**30%**	14%	0%	9%
Time for exploring digital teaching (In our school, I have time to explore how to improve my teaching with digital technologies)	10%	16%	**37%**	22%	7%	8%
Copyright and licensing rules (In our school, we apply copyright and licensing rules when using digital technologies for teaching and learning)	**33%**	**33%**	18%	7%	1%	8%

Note: The bolded frequency is the count for the most common (modal) response category.

The informants' most frequent responses to the statements that in their school they have a digital strategy, i.e., an action plan for improving digital teaching and learning, they are involved in the process of developing the digital strategy, they assess their progress in using digital technologies or employ them in partnership with other institutions fall within the 'partially agree' (3) zone: 40%, 38%, 37% and 30%, respectively. Despite the informants' uncertain stance with respect to these statements, their opinion seems to lean towards the more positive end of the Likert scale, since the claims obtain relatively high combined frequencies of responses in the 'strongly agree' (5) and 'agree' (4) areas: 44%, 42%, 41% and 47%, respectively. The respondents' opinion is clearly uncertain and conflicting regarding the statement that they have sufficient time to explore methods of teaching and learning through digital technologies: their most popular answer falls within the 'partially agree' (3) area (37%), but the statement obtains relatively high frequencies of responses in the neighboring 'agree' (4) and 'disagree' (2) areas.

The third and fourth parts of the SELFIE questionnaire contain statements about teachers' continuing professional development (CPD), divided into two parts—support from school leaders and forms of CPD.

The results summarized in Table 4, below, show that the informants have opportunities for participating in CPD, as their most common response falls in the 'agree' (4) area of the Likert scale (40%) and the neighboring zone of 'strongly agree' (5) also obtains a high frequency of answers. In addition, the findings suggest that the respondents receive support from their school leaders. There are high frequencies of 'agree' (4) and 'strongly agree' (5) responses in relation to the statements that the school leaders take into account their CPD needs (43%) and that the school leaders encourage them to share their experience of using technologies with others in the school context (40%); these statements obtain high percentages in the neighboring areas of 'strongly agree' (5) and 'agree' (4).

Furthermore, as can be seen in Table 5, below, which places emphasis on the typology of CPD, a relatively large number of the foreign language teachers have participated in various forms of CPD over the past year and evaluate them in a positive way. The data in the table indicate that the respondents assess face-to-face professional learning, online professional learning, learning through collaboration and other in-house training positively, which is evidenced by the fact that their most frequent responses for each type of CPD are located within the 'agree' (4) area (29%, 30%, 37% and 25% respectively) and are backed up by high percentages in the neighboring 'strongly agree' (5) zone. In-house mentoring/coaching is also evaluated positively, but the informants' position is more moderate this time: their modal answer falls within the 'agree' (4) area (29%) and the

neighboring 'partially agree' (3) zone obtains a high percentage too. Although accredited programs are labeled as 'irrelevant' (40%), the respondents seem to locate them on the positive end of the Likert scale, as 36% of their responses cover the 'strongly agree' (5) and 'agree' (4) areas.

Table 4. Continuing professional development (CPD)—part I.

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
CPD needs (Our school leaders discuss our CPD needs for teaching with digital technologies with us)	38%	**43%**	10%	8%	0%	1%
Participation in CPD (I have opportunities to participate in CPD for teaching and learning with digital technologies)	34%	**40%**	22%	4%	0%	0%
Sharing experience (Our school leaders support us to share experience within school about teaching with digital technologies)	**40%**	32%	19%	7%	0%	2%

Note: The bolded frequency is the count for the most common (modal) response category.

Table 5. Continuing professional development (CPD)—part II.

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
Face-to-face professional learning (Face-to-face courses, seminars or conferences outside school)	23%	**29%**	15%	7%	3%	23%
Online professional learning (Online courses, webinars or online conferences)	26%	**30%**	15%	6%	1%	22%
Learning through collaboration (Learning from other teachers within your school, through online or offline collaboration)	23%	**37%**	12%	6%	1%	21%
Learning through online professional networks (Learning from other teachers, through online teachers' networks or communities of practice)	14%	8%	11%	20%	0%	**47%**
In-house mentoring/coaching (In-house mentoring or coaching, as part of a formal school arrangement)	16%	**29%**	22%	11%	0%	22%
Other in-house training (Other in-house training sessions organized by the school—for instance, workshops by the ICT coordinator or observing colleagues teaching)	22%	**25%**	16%	14%	0%	23%
Study visits (Study visits—for instance, to other schools, businesses or organizations)	12%	12%	22%	14%	2%	**38%**
Accredited programs (Accredited programs—for instance, short accredited courses and degree programs)	18%	18%	7%	15%	2%	**40%**

Note: The bolded frequency is the count for the most common (modal) response category.

The informants appear to express a more conflicting opinion with respect to learning through online professional networks and study visits as forms of CPD. In both cases, the respondents' modal answers fall within the 'irrelevant' (0) zone (47% and 38%, respectively),

which clearly shows that a large number of informants have not participated in these forms of CPD over the last year. The informants who have taken part in such forms of CPD demonstrate a conflicting stance, as there are high frequencies of responses, not just in the 'strongly agree' (5) and 'agree' (4) areas, but also in the 'partially agree' (3) and 'disagree' (2) ones.

The sections of the SELFIE questionnaire discussed so far focus mostly on setting the institutional context in which the respondents in this study develop and practice elements of their digital competence. The remaining parts of the questionnaire all reveal various aspects of the informants' digital competence and bring to the fore its strengths and weaknesses. Section Five and Six address the respondents' digital competence directly by presenting statements related to the ways in which the teachers use digital technologies for more effective teaching and learning.

Section Five predominantly concerns the informants' ability to work with digital technologies and incorporate them into the educational process.

As shown in Table 6, below, the respondents' most frequent responses to the statements that they use online educational resources (such as quizzes, games, lesson plans, simulations, mind maps, texts, images, videos, etc.) in their teaching practices and they create digital resources themselves coincide with the 'strongly agree' (5) option on the Likert scale: 55% and 36%, respectively. The informants' strong agreement with both statements is strengthened by the high frequencies of responses in the neighboring 'agree' (4) area. However, it is important to note that a relatively high percentage of informants choose the 'partially agree' (3) option in relation to creating digital resources (30%), which appears to suggest that the informants tend to employ educational resources that are mostly ready-made. The data in Table 6 also indicate that the respondents' modal response to the statement that they use various digital technologies (such as email, website, blog, social media) for communication purposes with the school community is the 'strongly agree' (5) area (44%), which is further supported by a high percentage result in the 'agree' (4) zone. The informants express a more moderate agreement with the statement that they use virtual learning environments (for example, learning management systems for creating and managing educational content): a relatively high percentage of their responses fall within the 'strongly agree' (5) and 'agree' (4) areas of the scale (43%), but their most popular answer occupies the 'partially agree' (3) zone (38%).

Table 6. Pedagogy—part I: Support and resources.

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
Using online educational resources (I search online for digital educational resources)	**55%**	26%	18%	1%	0%	0%
Creating digital resources (I create digital resources to support my teaching)	**36%**	25%	30%	7%	0%	2%
Using virtual learning environments (I use virtual learning environments with students)	18%	25%	**38%**	12%	3%	4%
Communicating with the school community (I use digital technologies for school-related communication)	**44%**	33%	16%	4%	0%	3%

Note: The bolded frequency is the count for the most common (modal) response category.

The statements in Table 7, below, reveal further details about the informants' digital competence by presenting the reasons why they incorporate digital technologies into the educational process.

Table 7. Pedagogy—part II: Implementation in the classroom.

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
Tailoring to students' needs (I use digital technologies to tailor my teaching to students' individual needs)	23%	33%	**36%**	7%	0%	1%
Fostering creativity (I use digital technologies to foster students' creativity)	29%	**30%**	19%	15%	1%	6%
Engaging students (I set digital learning activities that engage students)	19%	27%	**30%**	14%	2%	8%
Facilitating student collaboration (I use digital technologies to facilitate student collaboration)	**26%**	**26%**	**26%**	17%	1%	4%
Cross-curricular projects (I engage students in using digital technologies in cross-curricular projects)	**26%**	18%	22%	19%	1%	14%
Open educational resources (I use open educational resources)	**52%**	36%	10%	2%	0%	0%

Note: The bolded frequency is the count for the most common (modal) response category.

The informants' most common response for using open education resources (such as electronic textbooks, lesson plans, videos, tests, mind maps, etc.) is the 'strongly agree' (5) option (52%), which connects well with the results discussed above (see the comments on using online educational resources in Table 6). When it comes to the respondents' reasons for using digital technologies, two objectives come to the fore: fostering students' creativity and engaging them in cross-curricular projects. The informants' modal answer for the former category is the 'agree' (4) zone (30%), supported by a high percentage of responses in the 'strongly agree' (5) area; their most common response for the latter category occupies the 'strongly agree' (5) area (26%), with a high percentage result in the 'agree' (4) area.

The data in Table 7 present three more reasons for using digital technologies, which the informants express a more moderate agreement with: tailoring the teaching process to their students' specific needs, engaging all students in learning, and facilitating student collaboration. The respondents' modal answers for tailoring to students' needs and engaging students are in the 'partially agree' (3) zone (36% and 30%, respectively), but the statements also obtain high results in the 'strongly agree' (5) and 'agree' (4) areas. The informants' responses for facilitating student collaboration reach the same percentage result in the 'strongly agree' (5), 'agree' (4) and 'partially agree' (3) areas of the Likert scale (26%), which brings to the fore the respondents' more moderate position.

The next section of the SELFIE questionnaire deals with the employment of digital technologies for assessment purposes.

As can be clearly seen in Table 8, below, when asked whether their school leaders support them in the process of evaluating students' knowledge and skills through digital technologies, the respondents select the 'strongly agree' (5) option as a modal response (37%), which is in line with the results discussed above (see the discussion on school leaders supporting teachers in using new ways of teaching based on digital technologies in Table 3). However, the informants express a more moderate agreement with the act of using digital technologies as a means of assessing students' skills (through educational games, simulations, diaries, etc.), providing them with timely feedback (through interactional software that offers immediate responses) and employing students' digital data

(such as grades, absence from class and quality of work) to improve their learning. A relatively large percentage of their answers fall within the 'strongly agree' (5) area and the 'agree' (4) area; yet, the informants' most popular response in all three cases occupies the 'partially agree' (3) area of the Likert scale: 48%, 30% and 34%, respectively. The respondents adopt an even more negative stance in relation to using digital technologies to stimulate students to give feedback to each other or keep track of their own learning. Their most common response in these two cases falls within the 'disagree' (2) area (29% and 32%, respectively) and a relatively high percentage of answers occupy the 'partially agree' (3) zone and the 'irrelevant' (0) one. What is more, the study participants express a conflicting opinion when it comes to assessing students' digital skills acquired through informal means outside the school context: their most popular responses occupy the 'partially agree' (3) and 'irrelevant' (0) zones (25%) and there are similar combined frequencies of responses not just in the 'strongly agree' (5) and 'agree' (4) areas, but also in the 'disagree' (2) and 'strongly disagree' (1) zones.

Table 8. Assessment practices.

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
Leadership support (Our school leaders support me in using digital technologies for assessment)	**37%**	34%	16%	10%	0%	3%
Assessing skills (I use digital technologies to assess students' skills)	21%	18%	**48%**	11%	0%	2%
Providing timely feedback (I use digital technologies to provide timely feedback to students)	25%	25%	**30%**	15%	0%	5%
Feedback to other students (I use digital technologies to enable students to provide feedback on other students' work)	15%	12%	25%	**29%**	1%	18%
Keeping track of learning progress (I enable students to use digital technologies to document their learning)	12%	19%	23%	**32%**	2%	12%
Using data to improve learning (I use digital data about individual students to improve their learning experience)	25%	21%	**34%**	10%	2%	8%
Assessing informal learning (I value digital skills that students have developed outside school)	10%	16%	**25%**	19%	5%	**25%**

Note: The bolded frequency is the count for the most common (modal) response category.

The eighth section of the SELFIE questionnaire focuses explicitly on the digital competence students have (see Table 9, below), and implicitly on the digital knowledge, skills and attitudes that teachers help them to acquire.

To start with, the study participants express a moderate agreement with the statement that their school leaders offer students various opportunities to develop their digital competence: a large percentage of their responses cover the 'strongly agree' (5) and the 'agree' (4) areas of the Likert scale (43%), but their most popular answer belongs to the 'partially agree' (3) area (40%). Despite this fact, the respondents' modal responses to the statements that in their schools, students are taught how to create digital content and how to communicate online reach the 'strongly agree' (5) area (36%); these results are further strengthened by high percentages in the neighboring 'agree' (4) zone. In addition, the

informants select the 'agree' (4) option as the most common answer in relation to the claims that students are taught how to demonstrate safe (40%) and responsible (44%) behavior and how to check the credibility of information (41%) in an online environment; all three statements receive additional support in the neighboring 'strongly agree' (5) area. The study participants adopt a more restrained stance with respect to the statements that students are taught how to give credit to others' work and how to solve technical problems: a large percentage of their answers cover the 'strongly agree' (5) and the 'agree' (4) zones, but their most frequent response in both cases falls within the 'partially agree' (3) zone (37% and 30%, respectively).

Table 9. Students' digital competence.

N = 73	Strongly Agree (5)	Agree (4)	Partially Agree (3)	Disagree (2)	Strongly Disagree (1)	Irrelevant (0)
Developing students' digital skills (Our school leaders ensure that students develop their digital skills across subjects)	21%	22%	**40%**	11%	2%	4%
Safe behavior (In our school, students learn how to behave safely online)	37%	**40%**	19%	1%	0%	3%
Responsible behavior (In our school, students learn how to behave responsibly when they are online)	36%	**44%**	18%	1%	0%	1%
Checking credibility of information (In our school, students learn how to check that the information they find online is reliable and accurate)	27%	**41%**	26%	3%	0%	3%
Giving credit to others' work (In our school, students learn how to give credit to others' work they have found online)	21%	30%	**37%**	8%	3%	1%
Creating digital content (In our school, students learn to create digital content)	**36%**	25%	34%	1%	1%	3%
Learning to communicate (In our school, students learn to communicate using digital technologies)	**36%**	34%	26%	3%	0%	1%
Solving technical issues (In our school, students learn how to solve technical problems when using digital technologies)	27%	26%	**30%**	7%	2%	8%

Note: The bolded frequency is the count for the most common (modal) response category.

Last but not least, the final section of the SELFIE questionnaire contains some summarizing statements related to teachers' digital competence: the most relevant for this study is the question that asks the informants to state what their confidence in using technologies is.

As can be seen in Table 10, below, the study participants evaluate their digital competence in a positive way. They present themselves as confident in using digital technologies in the following three cases: (1) preparing lessons through editing and creating digital content, for example, presentations, videos, etc.; (2) teaching in class through digital devices such as interactive whiteboards, multimedia projectors, etc.; and (3) assessing students and providing them with feedback. In all three cases, the modal response is the 'confident' (4) option (43%, 45% and 41% respectively), supported by a high percentage result in the first 'very confident' (5) area of the scale. What is more, the respondents express very high confidence

in using digital technologies to communicate with students and parents: the most common answer here is the 'very confident' (5) option (40%), which is further backed up by a high frequency of responses in the neighboring 'confident' (4) zone.

Table 10. Teachers' confidence in using technologies.

N = 73	Very Confident (5)	Confident (4)	Partially Confident (3)	Unconfident (2)	Very Unconfident (1)	Irrelevant (0)
Preparing lessons (Preparing lessons by editing or creating a variety of digital resources—for instance, slide show, images, audio or video)	38%	**43%**	11%	6%	1%	1%
Teaching in class (Class teaching using a variety of devices, such as interactive whiteboards, video projectors, and resources—for instance, online quizzes, mind maps, simulations)	40%	**45%**	7%	6%	1%	1%
Assessment and feedback (Assessing or providing personal feedback and support to students)	33%	**41%**	15%	5%	3%	3%
Communication (Communicating with students and parents)	**40%**	37%	17%	4%	1%	1%

Note: The bolded frequency is the count for the most common (modal) response category.

3.2. SELFIE for TEACHERS Questionnaire Results

As already stated in the methodology section, when completing the SELFIE for TEACHERS questionnaire, the informants had to evaluate proficiency statements that corresponded to six proficiency levels: A1 = 'I am aware. . .', A2 = 'I have tried. . .', B1 = 'I use. . .', B2 = 'I analyze/modify. . .', C1 = 'I support/motivate. . .' and C2 = 'I initiate/contribute. . .'. Examples of the proficiency statements can be found in Appendix A.

The first part of the SELFIE for TEACHERS questionnaire is devoted to the general category of 'professional engagement' and, more specifically, the role of digital technologies in enhancing professional communication, collaboration and development.

The data in Table 11, below, clearly show that the modal response for four of the subcategories ('online learning environments', 'reflective practice', 'digital life', 'computational thinking') in this first general category is that the teachers are at A1 'newcomer' level: 45%, 35%, 31% and 40%, respectively. The results mean that these informants are aware that when dealing with online learning environments, ethical aspects should be observed, and that reflecting upon the usage of digital technologies can improve one's professional performance and that one's digital life can have an impact on one's reputation. They also understand the relationship between computational or algorithmic thinking and digital competence. The data in Table 11 also indicate that the most common response for the subcategories of 'organizational communication', 'professional collaboration' and 'digital technologies and school level infrastructure' is that the informants are at the B1 'integrator' level (the highest frequencies of responses in this case are 51%, 49% and 44%, respectively), which comes to show that they use digital technologies for communication, collaboration and teaching within the school context. The modal response for the remaining two subcategories, namely 'professional learning (through digital technologies)' and 'professional learning (about digital technologies)', is that the teachers are at the B2 'expert' (38%) and A2 'explorer' (33%) levels, respectively, which can be interpreted to mean that they are capable of analyzing and choosing online resources and courses to suit their professional needs and have participated in various forms of continuing professional development in order to

improve their digital competence. Furthermore, totaling the average percentage frequencies for the nine subcategories within the general category of 'professional engagement' shows that 72% of the informants' answers fall in the range of A1–B1 (i.e., in the first half of the progressive scale), with the largest frequency being 31% for B1 'integrator'.

Table 11. Professional engagement.

N = 45	A1 Newcomer	A2 Explorer	B1 Integrator	B2 Expert	C1 Leader	C2 Pioneer	None of These
Organizational communication (Using digital technologies to enhance communication with colleagues and/or learners and/or parents)	16%	0%	**51%**	18%	11%	4%	0%
Online learning environments (Managing online learning environments, taking data management and ethics into account)	**45%**	20%	7%	22%	2%	0%	4%
Professional collaboration (Using digital technologies to engage in collaboration and interactions with colleagues and/or other education stakeholders)	18%	11%	**49%**	11%	9%	2%	0%
Digital technologies and school-level infrastructure (Using the digital technologies and infrastructure available in my school to enhance education)	18%	11%	**44%**	16%	4%	7%	0%
Reflective practice (Reflecting on my own and collective professional practice with the use of digital technologies)	**35%**	18%	26%	7%	7%	0%	7%
Digital life (Contributing positively and ethically in the digital world, considering safe and responsible digital practices)	**31%**	16%	25%	22%	2%	4%	0%
Professional learning through digital technologies (Using digital technologies for one's own professional learning)	9%	16%	29%	**38%**	6%	2%	0%
Professional learning about digital technologies (Engaging in professional learning activities for the development of teachers' digital competence)	22%	**33%**	29%	9%	0%	5%	2%
Computational thinking (Engaging with computational thinking concepts and processes as part of teacher digital competence)	**40%**	11%	18%	9%	0%	2%	20%
Average:	26%	15%	**31%**	17%	5%	3%	3%

Note: The bolded frequency is the count for the most common (modal) response category. The frequencies highlighted in gray constitute the salient range of the progressive scale.

The next part of the SELFIE for TEACHERS questionnaire deals with the selection, creation, modification, protection and sharing of digital resources (see Table 12, below).

Table 12. Digital resources.

N = 45	A1 Newcomer	A2 Explorer	B1 Integrator	B2 Expert	C1 Leader	C2 Pioneer	None of These
Searching and selecting (Using searching and selection criteria to identify digital resources for teaching and learning)	11%	13%	**40%**	27%	7%	2%	0%
Creating (Creating digital resources that support and enhance teaching and learning aims)	22%	18%	**47%**	2%	7%	2%	2%
Modifying (Modifying existing digital resources to support and enhance teaching and learning aims, respecting copyright and licensing rules)	**42%**	5%	25%	13%	11%	2%	2%
Managing and protecting (Organizing digital content, enabling easy and secure access for students, parents and teachers, while protecting sensitive and personal data)	24%	**29%**	27%	11%	0%	2%	7%
Sharing (Sharing digital content with respect to intellectual property and copyright rules)	**47%**	9%	24%	13%	0%	0%	7%
Average:	29%	15%	**33%**	13%	5%	2%	3%

Note: The bolded frequency is the count for the most common (modal) response category. The frequencies highlighted in gray constitute the salient range of the progressive scale.

The findings that emerge indicate that the most frequent response for two of the subcategories ('modifying', 'sharing') is that the informants belong to the A1 'newcomer' level: 42% and 47%, respectively. These results suggest that they are aware that when modifying and sharing digital resources, they should observe copyright and licensing rules. The modal response for two other subcategories ('searching and selecting' and 'creating') locates the respondents within the B1 'integrator' level (40% and 47% respectively), which means that they use digital technologies to search for, identify and choose resources that are suitable for their teaching purposes, but also employ digital means to create resources themselves. The most common response for the remaining category of 'managing and protecting' links the informants with the A2 'explorer' level (29%), thus showing that they have tried applying different methods to save, organize and protect digital content. Last but not least, calculating the average percentage frequencies for all five subcategories indicates that 77% of the informants' responses belong to the first part of the progressive scale, A1–B1, with the largest frequency for the general category 'digital resources' being B1 'integrator' (33%), just like the results for the first category 'professional engagement'.

The third section of the SELFIE for TEACHERS questionnaire focuses on the use of digital technologies to enhance the teaching and learning process.

As shown in Table 13, below, the modal response for two subcategories ('self-regulated learning', 'emerging technologies') places the teachers within the A1 'newcomer' level: 36% and 29%, respectively. This could be interpreted to mean they know that digital technologies can be used to encourage students to engage in autonomous, self-regulated learning, but also that they are aware that various emerging technologies, such as simulations and AI, can be employed for teaching and learning purposes. The most common response for the other three subcategories ('teaching', 'guidance', 'collaborative learning') associates the respondents with the B1 'integrator' level (38%, 31% and 42%, respectively), which comes to show that they use digital technologies to integrate innovative pedagogical practices

into the teaching process, to provide students with feedback and guidance in relation to their learning, as well as to stimulate students to take part in collaborative learning. The highest average percentage frequencies for all five subcategories accumulate in the first part of the progressive scale, A1–B1, with a combined percentage score for the first three levels of 76%. In keeping with the results reported for the first two general categories in the questionnaire (professional engagement, digital resources), the largest frequency for the category 'teaching and learning' is B1 'integrator' (29%).

Table 13. Teaching and learning.

N = 45	A1 Newcomer	A2 Explorer	B1 Integrator	B2 Expert	C1 Leader	C2 Pioneer	None of These
Teaching (Designing, developing and support learning with the use of digital technologies to enhance learning outcomes)	20%	18%	**38%**	13%	4%	4%	3%
Guidance (Using digital technologies in order to provide feedback and opportunities for reflection, leading to readjustment of teaching and learning practices for both teachers and learners)	27%	22%	**31%**	7%	9%	2%	2%
Collaborative learning (Using digital technologies to foster and enhance learner collaboration for individual and collective learning)	25%	11%	**42%**	16%	4%	0%	2%
Self-regulated learning (Using digital technologies to enhance students' self- regulated learning processes, fostering active and autonomous learning that makes students more responsible for their own learning, thereby shifting the focus from teaching to learning)	**36%**	22%	13%	13%	4%	4%	8%
Emerging technologies (Using emerging technologies in ethical ways to explore novel learning experiences and content)	**29%**	27%	20%	7%	2%	4%	11%
Average:	27%	20%	**29%**	11%	5%	3%	5%

Note: The bolded frequency is the count for the most common (modal) response category. The frequencies highlighted in gray constitute the salient range of the progressive scale.

The fourth section of the SELFIE for TEACHERS questionnaire concerns the employment of digital technologies to improve assessment practices.

The data presented in Table 14, below, indicate that the modal response for the subcategories of 'analyzing evidence' and 'feedback and planning' is A1 'newcomer' level (40% and 38% respectively), whereas the most common response for 'assessment strategies' is A2 'explorer' level (31%). These results suggest that the teachers are aware that digital technologies can be used to analyze the available evidence and keep record of students' progress, as well as to provide students with feedback. The findings also indicate that they have tried using digital technologies to enhance summative and formative assessment. The analysis of the average percentage frequencies for the three subcategories again reveals that the study participants' competence level covers the first part of the progressive scale A1–B1: the combined percentage result for the first three levels is 83%, but the largest frequency this time is A1 'newcomer' (33%).

Table 14. Assessment.

N = 45	A1 Newcomer	A2 Explorer	B1 Integrator	B2 Expert	C1 Leader	C2 Pioneer	None of These
Assessment strategies (Using digital technologies to support formative and summative assessment of learning)	22%	**31%**	29%	4%	9%	0%	5%
Analyzing evidence (Using digital technologies to collect and analyze evidence on students' learning processes and outcomes)	**40%**	25%	20%	4%	2%	7%	2%
Feedback and planning (Using digital technologies to provide feedback to learners, facilitating planning of further action)	**38%**	27%	18%	2%	4%	2%	9%
Average:	**33%**	28%	22%	3%	5%	3%	6%

Note: The bolded frequency is the count for the most common (modal) response category. The frequencies highlighted in gray constitute the salient range of the progressive scale.

The fifth section of the SELFIE for TEACHERS questionnaire places emphasis on empowering learners by using digital technologies to achieve inclusion and active engagement for learners, as well as personalization of the learning process.

As the highest percentage frequencies presented in Table 15 show, the modal response for most subcategories ('accessibility and inclusion': 33%, 'differentiation and personalization': 44%, 'actively engaging learners': 38%) goes into the A1 'newcomer' level, whereas the most frequent response for the remaining one ('blended learning': 31%) falls into the B1 'integrator' level. This could be interpreted to mean that the respondents are aware of the different obstacles that students can face (such as lacking access to digital devices or the Internet) and know that digital technologies can be used to personalize the learning process by tailoring it to students' needs, as well as to actively engage learners. The results also suggest that the informants use different digital platforms and tools in order to provide students with the opportunity to participate in blended forms of learning. The combined result (81%) of the average percentage frequencies for the first three levels again clearly shows that the respondents' competence covers the first part of the progressive scale, A1–B1, and the largest frequency is A1 'newcomer' (36%).

Table 15. Empowering learners.

N = 45	A1 Newcomer	A2 Explorer	B1 Integrator	B2 Expert	C1 Leader	C2 Pioneer	None of These
Accessibility and inclusion (Ensuring access to digital resources and learning activities for all students, taking into consideration any contextual, physical or cognitive constraints to their use)	**33%**	31%	13%	7%	7%	0%	9%
Differentiation and personalization (Using digital technologies to address diverse learning needs and capabilities by allowing learners to advance at different levels and speeds and follow individual learning pathways and objectives)	**44%**	33%	5%	5%	2%	2%	9%

Table 15. *Cont.*

N = 45	A1 Newcomer	A2 Explorer	B1 Integrator	B2 Expert	C1 Leader	C2 Pioneer	None of These
Actively engaging learners (Using digital technologies to foster learners' active and creative engagement in their learning)	**38%**	24%	20%	7%	4%	0%	7%
Blended learning (Using digital resources and tools, online learning environments and platforms to ensure students' learning within and beyond the classroom)	29%	22%	**31%**	9%	2%	2%	5%
Average:	**36%**	28%	17%	7%	4%	1%	7%

Note: The bolded frequency is the count for the most common (modal) response category. The frequencies highlighted in gray constitute the salient range of the progressive scale.

The final sixth section of the SELFIE for TEACHERS questionnaire deals with the process of encouraging students to develop their digital competence.

The highest percentage frequencies presented in Table 16, below, indicate that the most common response for the subcategories 'communication and collaboration' (38%), 'safety and wellbeing' (33%) and 'responsible use' (45%) occupies the A1 'newcomer' level, whereas the modal response for the remaining three 'information and data literacy' (36%), 'content creation' (33%) and 'problem solving' (42%) falls within the A2 'explorer' level. These results demonstrate that the study participants are aware of different teaching activities that can improve learners' ability to communicate and collaborate through digital devices, as well as behave in a safe and responsible manner online. In addition, the findings reveal that the informants have tried engaging students in activities which stimulate them to search for, evaluate and organize information online, create digital content, and use digital technologies to solve problems. Just like the results for the previous category 'empowering learners', the combined result of the average percentage frequencies for the first three levels (84%) shows that the informants' competence in the general category of 'facilitating learners' digital competence' belongs to the first part of the progressive scale, A1–B1, and the largest frequency is A1 'newcomer' (32%).

Table 16. Facilitating learners' digital competence.

N = 45	A1 Newcomer	A2 Explorer	B1 Integrator	B2 Expert	C1 Leader	C2 Pioneer	None of These
Information and data literacy (Incorporating learning activities, which require learners to use digital technologies to search, evaluate and manage information and data in digital environments)	24%	**36%**	20%	11%	0%	2%	7%
Communication and collaboration (Implementing learning activities that require learners to communicate and collaborate, using digital technologies)	**38%**	25%	25%	2%	4%	2%	4%
Content creation (Incorporating learning activities that require learners to express themselves by creating digital artifacts)	25%	**33%**	27%	4%	4%	3%	4%

Table 16. *Cont.*

N = 45	A1 Newcomer	A2 Explorer	B1 Integrator	B2 Expert	C1 Leader	C2 Pioneer	None of These
Safety and wellbeing (Empowering learners to use digital technologies safely, while mitigating risks to ensure physical, psychological and social well-being)	**33%**	22%	27%	2%	0%	7%	9%
Responsible use (Empowering learners to use digital technologies responsibly and ethically, managing their digital identity, digital footprint and digital reputation)	**45%**	22%	16%	2%	4%	2%	9%
Problem solving (Incorporating learning activities, where learners use digital technologies to understand and solve problems)	29%	**42%**	18%	0%	0%	4%	7%
Average:	**32%**	30%	22%	4%	2%	3%	7%

Note: The bolded frequency is the count for the most common (modal) response category. The frequencies highlighted in gray constitute the salient range of the progressive scale.

4. Discussion

The results from the analysis of the two questionnaires (SELFIE and SELFIE for TEACHERS) presented in the preceding section shed light on the present situation in relation to the foreign language teachers' digital competence and can help to draw a general picture of the institutional context in which they develop and practice their digital competence, the strengths and gaps of this competence, and their competence levels. What follows is a discussion of the questionnaire results in relation to the research questions posed at the beginning of this study: namely, (*1*) *How do the foreign language teachers evaluate the institutional context in which they develop and demonstrate their digital competence?* (*2*) *How do they perceive the strengths and gaps of their digital competence?* (*3*) *What are the teachers' self-evaluated levels of digital competence?*

To start with, the first four sections in the SELFIE questionnaire (infrastructure, leadership, CPD and CPD typology) provide insights into the institutional context that the study participants are part of and therefore answers to the first research question. It could be argued that this context displays both positive and negative aspects. What stands out among the positive aspects is relatively good technological infrastructure, including digital devices which can be used for teaching purposes, access to services such as the Internet, technical support, protection of teacher and student personal data, and observation of copyright and licensing rules. Another positive aspect of the respondents' institutional context is related to the fact that they receive support from their school leaders in testing and integrating innovative teaching methods based on digital technologies, as well as in participating in different forms of CPD. A third positive feature concerns the opportunities that the informants have to discuss the pros and cons of digital teaching and exchange experience within the school context. Among the negative aspects, four main factors come to the fore. The first negative factor concerns the digital technologies (devices, tools and resources) that students have access to and can use in the learning process. It seems that whereas there is enough technology for the teachers to use in the educational process, there is less for the students. The second negative aspect is related to the lack of a clear school strategy for integrating and employing digital technologies. An additional negative aspect is that the teachers seem to not have sufficient time to gather information about new methods of digital teaching and experiment with them in the classroom. Last but

not least, they appear to lack enough chances for partnership with members from other institutions to develop their digital competence through professional networking outside the school context. All this comes to show that whereas the positive aspects of the study participants' institutional context predominantly concern the digital technologies they use in their teaching practices, their CPD, and opportunities for applying new methods of digital teaching within the school context, the negative aspects seem to focus mostly on the lack of a clear school framework for integrating and employing digital technologies in the educational process, which can provide teachers with a point of reference when dealing with digital devices, resources, and content, as well as the lack of enough chances to gain professional digital experience outside of the school context.

The remaining sections of the SELFIE questionnaire (pedagogy–resources, pedagogy–implementation in the classroom, assessment practices, students' digital competence) contain data which can help us to answer the second research question concerning the strengths and gaps of the teachers' digital competence. The results clearly show that the foreign language teachers' digital competence covers the employment of digital resources, mostly ready-made, to support and enhance their teaching practices; the teachers create digital educational resources by themselves, to a lesser extent. This finding can be explained by the fact that most current language learning systems for foreign language teaching tend to contain a wide range of additional ready-made electronic resources, which teachers can use to achieve their educational goals [41,42]. The results also indicate that the teachers' intention behind using digital technologies is mostly stimulating students' creativity and engaging them in cross-curricular projects. In addition, the study participants' digital competence includes the employment of digital technologies for communication purposes within the school community context. Another aspect of the teachers' digital competence includes building their students' ability to verify information and create digital content, as well as to achieve effective communication and safe/responsible behavior in an online environment. All this comes to show that the strengths of the foreign language teachers' digital competence mostly concern the employment of digital resources for teaching purposes, the usage of digital technologies for communication, and stimulating students to improve their own digital competence. These positive aspects are backed up by the manner in which the respondents evaluate their competence in using technologies in the final section of the SELFIE questionnaire: they present themselves as being confident in employing technologies for teaching purposes and very confident in employing digital means for communication with students and parents.

Furthermore, the analysis of the SELFIE questionnaire data reveals several aspects which are not typical of the respondents' digital competence and can be interpreted as gaps. The findings clearly demonstrate that the teachers, to a lesser extent, avail themselves of the opportunity to employ digital technologies to adjust the educational process to their students' needs, involve them in the educational process and foster collaboration among them. This under-represented aspect in the informants' digital competence comes across as being an area that is potentially in need of improvement, given the fact that most present-day teaching approaches tend to be learner-centered, highlighting the importance of giving priority to learners' needs and personalizing the educational process (see, for example, the action-oriented approach proposed in the *Common European Framework of Reference for Languages* [43]). Another under-represented aspect in the study participants' digital competence concerns assessment. As the results clearly show, the informants appear to not approach digital technologies as a common means of assessing students, giving timely feedback or helping students to keep track of their own learning. This also demonstrates an area that is in need of improvement, since it runs counter to the above-mentioned tendency

to tailor the educational process to students' needs and, doubtlessly, digital technologies can offer more personalized forms of assessment.

Moving on to the third research question about the levels of the teachers' digital competence, the findings from the SELFIE for TEACHERS questionnaire provide insightful answers. The results indicate that the study participants' digital competence predominantly occupies the first part of the progressive scale from A1 level to B1 level. The findings clearly show that A1 'newcomer' and B1 'integrator' are the two most common levels with respect to both subcategories and general categories in the SELFIE for TEACHERS questionnaire. The A1 level is the lowest level in the progressive scale and concerns elements that the respondents know or are aware of; the B1 level occupies the highest point of the first part of the progressive scale and refers to elements which the respondents use in their professional practice (for more details on the two levels, see the *Digital Competence Framework for Educators* [2]).

At the level of subcategories in the SELFIE for TEACHERS questionnaire, the results suggest that the study participants are aware (A1 level), for example, of the fact that reflecting upon the usage of digital technologies can improve one's professional performance, that the employment of digital resources requires observing ethical rules or that emerging technologies such as AI can affect teaching and learning practices. They also know (A1 level) that digital technologies can be used to personalize the educational process and are aware of various teaching activities that can facilitate learners' digital competence. The respondents use (B1 level) digital technologies for selecting resources, teaching, communication and collaboration within the school context, and integrating innovative teaching methods into the educational process. As can be clearly seen from the examples given above, the respondents are mostly aware of aspects related to their professional engagement, whereas they use digital elements to support their teaching practices.

At the level of general categories in the SELFIE for TEACHERS questionnaire, the findings indicate that for the first three categories (professional engagement, resources, teaching and learning), the most frequent level is the higher B1 level. These results, especially in relation to the resources, are in line with the conclusion drawn in the SELFIE questionnaire, where teaching/learning through digital resources comes across as being a strength of the respondents' digital competence. For the remaining three general categories (assessment, empowering learners, facilitating learners' digital competence), the most common level is the lowest A1 level. With respect to assessment and empowering learners, which mostly concern the act of personalizing the learning process, these findings support the conclusion arrived at in the SELFIE questionnaire, where these two categories emerge as under-represented or non-dominant aspects of the informants' digital competence. The case with facilitating learners' digital competence develops in a different direction. Although it appears as a positive aspect of the teachers' competence in the data from the SELFIE questionnaire, here it receives low assessment, thus emerging as yet another area in need of improvement.

5. Conclusions

The goal of this study has been to investigate the digital competence of foreign language teachers in Bulgarian secondary education by highlighting the institutional context in which they practice their digital competence, the strengths and gaps of this competence, and their competence levels. To achieve its objectives, the present investigation analyzed the empirical data collected from a sample of schools, which was representative of the Bulgarian educational context, through an integrated SELFIE and SELFIE for TEACHERS framework.

The results from the analysis of the questionnaire data established that the foreign language teachers work in a relatively good technological environment and receive support from the school leadership for participating in different forms of continuing professional development, as well as for integrating digital technologies into the learning and teaching process. These findings contrast with those of earlier studies from different countries reporting inadequate technological school infrastructure [11] and confirm the conclusions drawn by investigations establishing positive trends in terms of technological environment, leadership support and employment of digital resources [6,9]. Indeed, the results of this study showed that the foreign language teachers' institutional context demonstrates positive aspects with respect to school provision and leadership support, which in itself creates a favorable environment in which the teachers can practice and improve their digital competence. The findings also suggest that this environment can be further improved by implementing a clear school strategy for integrating and employing digital technologies within the school context, as well as by providing the teachers with more time for trying out new methods of digital teaching, opportunities for collaboration and exchange of ideas, and experience with teachers from other institutions through project work, training and professional networking. Another possible improvement of the teachers' institutional environment can be the provision of more technologies for students to employ during the learning process, thus creating a better balance between the digital technologies available in the school context for the teachers and students to use.

Furthermore, in relation to the study participants' digital competence, this investigation revealed both strengths and weaknesses. The findings showed that the positive aspects of the foreign language teachers' digital competence focus mostly on the employment of digital technologies for teaching and communication purposes within the school community context. The analysis of the empirical data also pointed to three areas or gaps in the teachers' digital competence which seem to be in need of improvement—namely, empowering learners by making the educational process more personalized or learner-centered, assessment practices, and facilitating students' digital competence—which corroborates the results of previous studies conducted in the Bulgarian context [19]. These results bring to the fore the need for the foreign language teachers to participate in professional training that is specifically focused on acquiring knowledge and skills related to using digital technologies for personalizing the educational process and adapting it to students' needs, providing learners with timely feedback and individualized forms of assessment, and helping learners to develop their own digital competence. The acquisition of such digital knowledge and skills could improve the effectiveness of the foreign language teachers' pedagogical practices by enhancing their ability to facilitate their students' language acquisition through tailoring the educational content to different needs, learning styles and proficiency levels, offering prompt and personalized suggestions for overcoming problematic language areas, while also helping their students to take active control of their own language learning process.

Last but not least, the results from the questionnaire data showed that the study participants' digital competence covers the lower section of the progressive competence scale, with the levels of A1 (I am aware) and B1 (I use) being the most common ones, which supports the findings of previous research on teachers of various subjects and their self-evaluated levels of digital competence carried out in Bulgaria [27,28]. It could be argued that the foreign language teachers' digital competence should be at least at B2 level (I analyze/modify), thus entering the higher level of the progressive competence scale. Indeed, the teachers should be able to analyze and modify digital technologies to make them suitable for their students and personalize the educational process. A possible way in which the teachers can enhance their digital competence in the direction of the

B2 level is taking part in different forms of continuing professional development, such as face-to-face/online professional training and collaboration with other teachers inside and outside the school context, which place emphasis on approaching digital technologies in a critical manner, selecting and designing digital resources and tools suitable for particular educational purposes, and evaluating the advantages and disadvantages of incorporating various digital methods into the teaching process.

It is important to note that the results of this study highlight an important contradiction with respect to the relationship between the foreign language teachers' institutional context and their digital competence. Even though the teachers work in a relatively good digital environment, their digital competence demonstrates gaps and lower levels. This clearly shows that a favorable digital context does not necessarily result in improved digital competence for teachers. These findings question the validity and effectiveness of the current digitalization approaches adopted in Bulgarian secondary schools and bring to the fore important practical implications for both institutional capacity building and teacher education policy. The findings suggest that within the school systems, the sustained digital improvement of the institutional context in which the teachers operate should go hand in hand with providing continuous and determined support for their active participation in targeted professional development programs related to empowering learners and employing digital technologies critically.

The present study is marked by some limitations. First, it explores data collected from the foreign language teachers through self-evaluation of their institutional context, as well as their own digital competence, which brings with it a possible risk of answers complying with social norms, rather than actual practices. Second, this study establishes whether or not specific knowledge and skills are part of the informants' digital competence, but not how well they can employ them within their actual pedagogical practices. Third, because of its limited scope, the current investigation approaches 'institutional context' and 'teacher competence' as homogeneous entities without considering the potential impact of various social circumstances or factors, such as school size, geographical region, age, gender, professional experience, previous learning, etc.

In spite of the abovementioned limitations, this study constructs a general picture of the foreign language teachers' digital competence, revealing important aspects related to its strengths and areas that are in need of improvement. To make this picture more detailed and comprehensive, this study could be enriched and complemented by further research based on empirical data drawn not just from questionnaires, but also interviews and observation of teaching practices, which will enable the analysis of the teachers' self-evaluation and beliefs, as well as their actual performance in the foreign language classroom. This further research based on interviews and class observations could focus on aspects of teachers' digital competence related to their experience in using digital technologies for pedagogical purposes, the need for further professional development in this area, and concrete examples of integrating technologies effectively into educational activities to support and enhance the teaching and learning process, establish pedagogical communication with students and keep track of their progress. Such additional research can provide an enhanced and more in-depth understanding of teachers' digital competence, as well as further empirical insights into the knowledge, skills and attitudes that educators need to possess as agents of digital and social transformation.

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Abbreviations

The following abbreviations are used in this manuscript:

DigCompOrg	A European Framework for Digitally Competent Educational Organisations
DigCompEdu	Digital Competence Framework for Educators
SELFIE	Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies
SELFIE for TEACHERS	Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies for Teachers
SUMMIT	Sofia University Marking Momentum for Innovation and Technological Transfer
CPD	Continuing Professional Development

Appendix A. Area 1—Professional Engagement

Appendix A.1. Organizational Communication

- **I am aware** that digital technologies can be used for organizational communication (e.g., email, instant messaging, social networks, online learning platforms).
- **I have tried** using digital technologies to help me communicate with colleagues, learners and/or parents (e.g., email, instant messaging, social networks, online learning platforms).
- **I use** various digital technologies, according to my organizational communication needs (e.g., the communication goal, target and context).
- **I analyze and select** digital technologies based on their features and suitability for my organizational communication needs (e.g., effective, efficient and personal communication).
- **I support and provide advice** to colleagues on how to use digital technologies for organizational communication (e.g., for effective, efficient, safe, responsible, inclusive communication at school level).
- **I contribute to** developing organizational practices in communication, using digital technologies (e.g., for effective, efficient, safe, responsible, inclusive communication).

Appendix A.2. Online Learning Environments

- **I am aware** that when managing online learning environments, ethical issues and appropriate data management methods should be considered (e.g., open or restricted access, GDPR compliance).

- **I have tried** different settings to ensure that online learning environments comply with ethical considerations and the data management strategy (e.g., protection of users' data, access policy, terms of use, data management, privacy issues).
- **I administer** online learning environments in line with ethical considerations and the data management strategy (e.g., administration features, managing content and student data).
- **I analyze** the features of online learning environments and apply the ones that best respond to the ethical considerations and data management strategy of my working context (e.g., security, users and data management, access policy, hosting of data).
- **I support and provide advice** to colleagues about ethical considerations and data management practices when using an online learning environment (e.g., use of passwords, encryptions, security procedures, data management transparency).
- **I initiate and promote** a school-level data policy and code of ethical conduct in online learning environments (e.g., personal data management, accessibility for all, security, privacy).

Appendix A.3. Professional Collaboration

- **I am aware** that digital technologies can be used for collaboration and interactions with colleagues and/or other education stakeholders (e.g., exchanging content by email attachments).
- **I have tried** using digital technologies to collaborate and interact with colleagues and/or other education stakeholders (e.g., exchanging content using online services, participating in online professional networks).
- **I use** various digital technologies to collaborate and interact with colleagues and/or other stakeholders, according to collaboration needs (e.g., sharing content, practices, and/or ideas).
- **I analyze and select** digital technologies based on their features and how they can support collaboration tasks that I need to engage in with colleagues and/or other education stakeholder (e.g., collaborative online activities).
- **I lead** collaborative tasks with colleagues and/or other education stakeholders, using digital technologies (e.g., collaboration and co-creation of learning designs, implementation of joint projects).

Appendix A.4. Digital Technologies and School-Level Infrastructure

- **I am aware** of digital technologies that are available in my school that can support my professional practice (e.g., devices, applications, infrastructure).
- **I have tried** using digital technologies that are available in my school that can support my professional practice (e.g., interactive whiteboards, tablets, intranet).
- **I use** various digital technologies that are available in my school, according to my professional practice needs (e.g., learning management system, cloud services).
- **I analyze and select** the digital technologies available in my school based on their features and suitability to enhance my professional practice (e.g., online learning environments, immersive technologies).
- **I support and provide advice** to colleagues on how to use digital technologies that are available in our school for their professional practice (e.g., giving presentations, organizing workshops, developing learning resources).
- **I propose** new digital technologies for professional practice to be used in my school (e.g., emerging technologies, applications, infrastructure).

Appendix A.5. Reflective Practice

- **I am aware** that reflecting on how I use digital technologies can enhance my professional practice (e.g., online diary, peer-to-peer reflections).
- **I have tried** reflection methods on my use of digital technologies to further develop my digital competence (e.g., online self-reflection tools, reflection diary, digital story telling).
- **I use** various reflection methods in order to improve and update my professional digital practice (e.g., co-teaching, video recording of lessons, peer-debriefing sessions).
- **I analyze** the outcomes of my reflection to improve the use of digital technologies in my professional practice (e.g., analyzing peer feedback, using mind mapping tools and other tools that support annotations, audio commentaries, online diaries).
- **I support and provide advice** to colleagues about improving the use of digital technologies in their professional practice through critical reflection (e.g., through discussion forums, blogs, social networks, online professional communities).
- **I initiate and contribute** to the development of a reflective learning culture that enhances the use of digital technologies in my school and beyond (e.g., lesson study, collaborative learning design, coaching, mentoring).

Appendix A.6. Digital Life

- **I am aware** that my digital activity may have implications for my own reputation and that of my school (e.g., sharing private information, using inappropriate language).
- **I recognize** possible risks and threats for my reputation and that of my school relating to my digital activity (e.g., privacy, personal data, bullying, misinformation).
- **I use** mitigating measures to maintain a positive digital profile (e.g., understanding the provided terms of use, tracing my digital footprint, managing my privacy settings).
- **I analyze and assess** my digital footprint to adjust my behavior and to help curate my own reputation and that of my school online (e.g., tracing my digital footprint, managing privacy settings, blocking suspicious content and people, applying school guidelines on digital activities).
- **I support and provide advice** to colleagues on creating and curating ethical and responsible digital profiles (e.g., presentations, workshops, supporting material, activities).
- **I initiate and promote** school-level strategies that encourage staff and students to contribute positively, responsibly and ethically in a digital world (e.g., providing transparent data and content management procedures, developing an ethics code of conduct).

Appendix A.7. Professional Learning Through Digital Technologies

- **I am aware** that digital technologies can support and enhance my professional learning (e.g., digital tools and resources, online learning environments and courses).
- **I have tried** using digital technologies for my professional learning (e.g., searching for information online, joining online courses, using online learning apps, visiting online libraries and repositories).
- **I use** various digital technologies for my professional learning (e.g., discussions in a forum, uploading material, giving and receiving feedback, presenting).
- **I analyze and select** online learning resources and activities that best suit my learning needs (e.g., webinars, online interactive courses, online learning communities).
- **I support and provide** advice to colleagues on using digital technologies for their professional learning (e.g., online learning communities, online repositories, e-portfolios).

- **I initiate and promote** a plan to support my colleagues' digitally enhanced professional learning (e.g., providing webinars, online training, online communities, resources repository, digital badges).

Appendix A.8. Professional Learning About Digital Technologies

- **I am aware** that engaging in professional learning activities on using digital technologies can develop my digital competence (e.g., webinars or workshops on the use of digital technologies in teaching and learning).
- **I have attended** professional learning activities about using digital technologies in order to develop my digital competence (e.g., microteaching, workshops on the use of digital technologies in teaching and learning).
- **I participate** in various formal and informal professional learning activities about using digital technologies to develop my digital competence (e.g., hands-on training on the pedagogical use of digital technologies, online learning approaches, digital assessment).
- **I analyze and select** professional learning activities about using digital technologies based on my needs (e.g., using a self-reflection tool on my digital competence, setting learning goals, designing my learning, reflecting on my learning).
- **I provide** learning activities about using digital technologies and support colleagues on the development of their digital competence (e.g., workshops, informal sessions with colleagues, microteaching on the use of digital technologies).
- **I contribute** to the design of professional learning programs which aim to develop teachers' digital competence (e.g., project-based learning with the use of digital technologies, digitally enhanced learning design, exchange of good practices).

Appendix A.9. Computational Thinking

- **I am aware** of computational thinking concepts and processes and how these relate to digital competence (e.g., analyzing a problem to find a solution, recognizing aspects of computational thinking around us).
- **I have tried** using computational thinking processes to explore solutions to a problem (e.g., decomposition of a problem, solution through a definition of steps, analyzing a set of instructions applied to a solution).
- **I use** various digital tools to explore solutions to a problem, following computational thinking processes (e.g., visual programming tools, authoring tools and editors).
- **I analyze and select** responses generated by algorithms (e.g., rank of search results, advertisements, how a robot can respond).
- **I lead** computational thinking activities in my school to support the development of colleagues' and students' digital competence (e.g., programming classes, competitions, hackathons).
- **I contribute** to the design and development of educational digital applications (e.g., games, mobile apps, assessment tools, customization of virtual environments).

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