Needs Analysis as a Cornerstone in Formation of ICT Competence in Language Teachers Through Specially Tailored In-service Training Course

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Abstract. ICT competence is becoming an integral part of foreign language teachers' professional competence. However, syllabus design of efficient in-service courses aiming at improving ICT competence in specialists outside the IT domain is still quite a challenge. This paper looks specifically at needs analysis as a key to efficient professional development course design. This paper addresses practical concerns about ambiguity of the concept of *needs*, and focuses on learners' *wants* rather than *necessities* as the basis of needs analysis. Findings allowed the authors to develop a framework for a specially tailored in-service training course aiming at improving foreign language teachers' professional ICT competence. The study also focuses on identifying University teachers' needs related to sustainable development of their ICT skills and challenges that may be encountered in this field.

Keywords: Component · In-service language teachers training · ICT competence · Needs-based analysis · In-service training course syllabus

1 Introduction

Technological advances of the digital era require that teachers in institutions of HE be able to make use of them in their every day work for improving quality of teaching their disciplines. While debates about necessary changes in curricula of training pre-service teachers (e.g., language teachers) are very fruitful, most today's teachers have to find formal (through in-service training courses) or informal (through occasional workshops, webinars, conferences, self-directed learning, learning from colleagues and students, etc.) ways of improving their professional competence in using Information and Communications Technology (ICT competence) [11].

Educators in different disciplines in different countries stress that this competence "is not simply about the technology, but also requires an understanding of the pedagogical considerations, and the skills that are needed, to effectively facilitate them" [21].

So, as G. Karlsson put it in-service training should cover such issues as Student centered learning, Curriculum design, Quality of teaching, ICT enhanced learning, Technologies of e-learning [13]. Besides the issues common for most professionals in today's HE there are discipline specific ones that should be taken into account while considering in-service courses syllabus.

In the language teaching domain, which we represent, it was discovered that the online context of language learning needs new teaching approaches and teaching skills that are different from those used in teaching face-to-face language courses [9]. These new skills are crucial for teaching online language courses whose subject matter is communication. This discovery resulted in a good deal of fruitful research aiming at detailed analysis of the skills, approaches and responsibilities a language teacher should have to teach on-line (see for example, [4, 18, 19]), development of self-assessment questionnaires similar to ICT "can do" lists composed by Prof. G. Davies [5], helping language teachers to evaluate what they know about technology, what exactly they can do or apply into practice, and what they would like to learn to improve their ICT competence.

Based on these studies we refer to ICT competence of a language teacher as a combination of four groups of skills: *cognitive level skills* (the ability to learn and to master new technology, understanding its place in the teaching process and instructional design), *technical level skills* (the ability to use computer programs, internet resources, CMS, LMS, etc. for teaching purposes), *motivation level skills* (the ability to feel the need in professional development in online teaching, to enjoy using technology, etc.), and *experience level skills* (sustainability in using technology, ability to use new skills, time management, etc.)

The burning issue, however, is how to realize a formal in-service training of language teachers in the most efficient way. Ph. Hubbard considers 13 possible approaches focusing on either the amount of content covered (breadth vs depth dilemma); or ways of delivery such as online, hybrid, in the classroom 'mentor-based', self-directed learning which is now a feasible possibility with manuals like [7, 10, 16] being available; or desirable outcomes (portfolio-based, project based, situated learning), and some others [11].

According to Titova, in order to be efficient, an ICT professional development course has to be based on the standards of ICT competence structure, as well as on a number of existing frameworks both on the international and national level, like the Russian Federal State Standard for Higher Education Institutions introduced in the Russian Federation recently; and, in addition to this, be in the hands of subject specialists rather than ICT specialists to avoid being too general or too technical; be practically oriented; help teachers create professional networks or virtual teaching environment [19]. However, literature review, as well as our own experience and observation, allow us to suppose that relatively short, in-service training courses for language teachers will be the most efficient if they are built around one or a very limited number of applications or meet the criteria for a situated learning environment where teachers can immediately connect their work in CALL (Computer Assisted Language Learning) to the classrooms in which they are currently teaching.

Examples of 'depth-first courses' allowing teachers to acquire both technical and pedagogical skills and knowledge through firsthand experience described in literature are built around

- development of a WebQuest [3];
- computer mediated communication (tele-collaboration project for in-service teachers from different countries) [6];
- considering/mastering features of virtual learning environments (VLE) or learning management systems (LMS) Moodle [17];
- Interactive White Board (IWB), for example, at Peter the Great Polytechnic University (St. Petersburg, Russia) such a course providing in-service training for faculty members proves to be very popular. This goes in good agreement with Dudeney & Hockley's opinion stating that only training for teachers in the use of a complex tool such as an IWB can ensure 'effective uptake' [7, p. 124];
- a specific skill area, such as development of learner autonomy through VLE (Coalea project described by Bailly [1]) or learner motivation to use a powerful potential of modern ICT technologies for development of communicative skills in a target language within University curriculum [2].
- effective use of corpora in language education [8, 14].

Few studies which focus on follow-up on impact of the in-service training on teachers' practice show that applying the acquired skills is a problematic area: only 10% of all teachers participating in in-service courses produced their own materials for publication (websites, blogs, wikis, etc.) and 7% were actually involved in some sort of telecollaborative event a year after completing an international telecollaboration in-service training course [6].

All these considerations made us assume that it proves practically impossible to develop an in-service training course aiming at increasing language teachers' ICT competence which meets all the above requirements. We postulate that the course syllabus should be based on the results of would-be learners needs analysis.

Saying this, it's important to focus on the concept of *needs*. In his comprehensive paper R. West suggests that there still exists certain ambiguity in understanding the very concept of *needs analysis*, depending on the meaning of *needs* considered. He states that there is a contradiction between various concepts of need: *necessities* or *demands* (also called *objective, or product-oriented, or perceived* needs) and learners' *wants (subjective, or felt* needs) [20]. The latter refer to what the learners want or feel they need. These needs are considered to be personal and can be referred to as *subjective needs.* They could be hidden from an external observer and therefore not easily definable.

The aim of this study is to identify university language teachers' subjective needs concerning their professional ICT competence with subsequent use of these findings to design a specially tailored in-service training course and test its efficiency.

2 Methods

To analyse the ICT skills and professional development needs of Russian HE foreign language teachers, an online questionnaire was designed, aiming at checking cognitive, technical, experience level skills, as well as teachers' motivation to use technology in their practice in and outside the classroom. To provide better access to the on-line questionnaire, the link to it was given in social networks (Russian network "vkontakte" vk.com, facebook), sent directly to the researcher's e-mail contact list, and referred to in the skype account of the author (kabanovanadezhda) and on the Moodle site of the researcher's affiliated institution (moodle.lingua.spbstu.ru). All the addressees mentioned had a choice whether to participate or not, to insure anonymous and willing contribution. The questionnaire was open for three months for distant participants.

To compare the ICT skills of language teachers with the skills and educational needs of university lecturers from different fields, another questionnaire was designed and distributed via Google forms service among the participants of a general ICT course developed by the SPbPU electronic resource department.

Regarding the first questionnaire, after 3 months of data collecting the feedback came from 56 foreign language teachers from 18 universities (the Russian Federation) located in 7 cities and regions of the Russian Federation from Kaliningrad on the west to Khabarovsk on the east.

The online questionnaire consisted of five blocks of multiple choice questions (though the possibility to leave comments was provided for each question), each of which refers to different components of ICT competence of a language teacher:

- Basic Skills of using ICT (cognitive and operational level skills), e.g. the ability to use text-processing software, create and edit presentations;
- Use e-mail, social networks, blogs, forums, wikis, websites, search tools, etc. for personal needs;
- Using ICT for foreign language teaching (FLT) (cognitive, operational, experience level skills), e.g. ability to use text-processing software, create and edit presentations, use e-mail, social networks, blogs, forums, wikis, websites, search tools, multimedia etc. for creating teaching resources and enhancing communication with students; experience in using VLE, LMS, CMS available in their institutions to organize students' individual and collaborative learning and project work; ability to use authoring tools (test-makers, like *hot potatoes*) to create and use interactive tasks;
- Professional Development in the field of ICT (experience and motivation level skills), e.g. previous experience of pre-service and in-service courses in ICT and CALL; fields of special interest in ICT (online or hybrid learning, evaluation and assessment tools, instructional design and ICT, using LMS or social networks in FLT, etc.);
- Attitude towards using ICT for FLT (motivation level skills), e.g. the desire to develop professional competence in ICT and CALL, obstacles teachers encounter when using ICT in their institutions, etc.
- BIO data (experience level), e.g. age, position, institution, experience in FLT, ICT, CALL.

In addition to the questionnaire, off-line observation was used for deeper understanding of the needs of three focus groups (totally of 54) of would-be participants of the in-service face-to-face course for FL teachers at Peter the Great Polytechnic University (St. Petersburg, Russia). To identify the key skills that teachers already have we carried out practical skills analysis based on the study of real teaching resources they use (computer-based and internet-based), and observation of teaching practice (use of ICT during face-to-face lessons and for independent learning support for students) of six teachers chosen randomly among those who expressed the intention to participate in the course.

Needs analysis allowed us to set out the objectives of the skills-based, practically-oriented in-service course of professional development in the field of ICT, its content, instructional technology, and teaching facilities. Three groups of foreign language teachers working at Peter the Great Polytechnic University did in-service courses covering 72 h of active learning. The training lasted for 3 to 6 months in different groups to support maximum flexibility. The formal in-service course was followed by one year informal and non-formal individual professional development controlled by the tutor.

After the course we analysed the outcomes, doing qualitative and quantitative analysis of teaching skills, resources and practice observation. We also used Wilcoxon signed-rank test to check the validity of measuring ICT competence improvement. Based on the analysis, we suggested a course syllabus update, that is, a set of rec-ommendations for instructional designers to improve further teacher training process.

3   Findings

When the on-line questionnaire for distant participants was closed, we analysed the answers and comments, which enabled us to summarize the data as follows.

3.1   BIO Data

Participating teachers fairly equally represented five different age groups (approxi-mately 20% each): under 35 (young professionals, born after 1980, attending high school and HE institutions during the period of active reforms in Russia and Russian education system), from 35 to 45 (experienced instructors, mostly taught in more traditional Russian academic universities), from 46 to 54 (experienced teachers, less than 10 years before retirement age for women in Russia), and over 55 (age of retirement for women). 61% had more than 15 years of professional experience in foreign language teaching. More than 50% stated their position as "Senior Lecturer" (faculty members at Russian Universities who usually do not have PhD degree and thus less intend to share their experience and reflect on it in scientific papers) working in different universities, mostly/mainly teaching a general English course to students majoring in Applied Linguistics, Information Science, Physics, Economics, Design and other subjects.

3.2 Basic Skills of Using ICT and Using ICT for Foreign Language Teaching

All participants demonstrated fairly confident use of basic ICT skills for personal needs that can be explained by the used means of disseminating the information about this survey. We assume that most participants found hyperlinks to the questionnaire either in their e-mail inboxes or in the news feed of social networks. However, it is clear that very limited ICT skills were necessary and sufficient for filling in the Google forms.

Most participants (more than 60%) identified their ability to use ICT for personal needs as "experienced user", which involved the ability to use different text processing tools; manage files and folders; set up software, drivers for hardware, programs and applications; learn how to use new programs and even help friends and colleagues solve some simple problems with software and hardware use. All participants have regular access to either desk-top or laptop computer with good internet connection, both at home and in their institution, but when asked about the purposes of using computer and internet access, they mentioned checking e-mail and searching information for personal needs. About 75% of participants who use internet regularly mentioned information search for professional purposes, and even fewer (50%) use the internet to organize and manage teaching practice.

37% of participants answered that they were registered and regularly used their accounts in social networks (mostly facebook, twitter, and vkontakte) not only to access information, but also to create their own messages, pages, groups, blogs and discussions. This fact means that teachers are ready to create and share content on the internet. However, only 16% have their own content in LMS or CMS in their institutions. This tendency might mean that teachers' technical level skills are developed enough to create their own content, but their motivation level of professional ICT competence is relatively low, as they do not apply their knowledge in professional context.

41% of participants regularly use computers and the internet to prepare activities for face-to-face lessons and to deliver their content at the lessons, but only discouragingly few (8%) claimed that they use their own teaching resources or the content they created and uploaded to LMS. Most teachers prefer to use media and technical equipment they are well familiar with (CD players, DVD players, overhead projectors for audio and video content delivery – 19%; internet-based resources and e-textbooks – 14%). To support students' independent work most teachers (about 70%) prefer to send files with tasks and hyperlinks via e-mail, while only about 10% mentioned communicating with students in forums and blogs, and organizing project work in LMS as part of their support.

3.3 Professional Development in the Field of ICT

45% of participants have taken in-service professional development courses in the field of ICT at least once in their career, and 32% have done a course of ICT for FLT. Although most teachers admit that they have improved their professional ICT competence, only 16% are completely satisfied with their progress and skills development. On the one hand, these data may question the level of the courses the participants have completed, but, on the other, confirms the need to further develop teachers' ICT for

FLT skills. 63% of participating teachers stated that they would like to develop their ICT competence in FLT, and some of them mentioned that in-service courses format alone was not always appropriate, that is, a short course is not enough to master ICT skills and to learn how to apply them in practice.

When it comes to the content of the course, we offered a wide range of options in a multi-select question, so that all participants could choose as many topics and fields of interest as they liked. The following topics were chosen most often (18 to 21%): planning and designing activities and working in LMS/VLE; creating computer-based teaching resources for FLT; teacher-student communication in digital environment (using different means, such as social networks, blogs, and forums). Basic general ICT skills like text processing, working in Power Point, searching for information in the internet received lowest percentage of answers (approximately 4%). These data confirmed our assumption that practically oriented and subject-specific courses would be more popular among language teaching professionals than general, technology-centered ones.

3.4   Attitude Towards Using ICT for FLT

Most participating teachers stated that they support ICT use for FLT (80%), but only 36% were prepared to take active part in implementation of technology into their everyday working routine. They added that they might agree to be more active provided their institutions supported them both technically (providing equipment, training, hardware and software) and financially (higher salary or bonus on a regular basis). These data show a lack of teachers' internal motivation (motivation level skills) and demonstrate a tendency to expect some extra benefits from institutions if they use ICT in teaching, although professional ICT competence is nowadays considered by most employers in education as a must (see [11], for example). Nevertheless, most participants admitted that using ICT is an innovative trend in foreign language teaching and instructional design, which allows us to express hope that, in case of improving teachers' motivation during in-service courses, it might be possible to increase the number of language teachers who actually use ICT skills in practice.

When asked about preferences concerning creating and sharing digital course materials, ways of communicating with students, and managing activities, teachers agreed that they are ready to provide students with general information about the language course (explain the agenda and requirements in LMS or via e-mail), share course content in the form of files, presentations, hyperlinks to audio and video resources; answer students' questions via e-mail, forums and instant messaging tools in VLE; less often - manage and assess students' individual project in the internet. Most teachers said, however, that they were not yet prepared to manage their personal website, professional blog or professional digital network (for students or for colleagues).

3.5   Analysis

Six full-time female teachers aged 35–47 from St. Petersburg Polytechnic University who intended to join the in-service course were selected for further research, namely for analysis of teaching resources and technology enhanced methods of teaching English they use.

All participating teachers demonstrated clear understanding of the necessity to use computer-based and internet-based teaching resources already available. 4 out of 6 have used LMS (Moodle site available on the institutional level) to organize students' independent work, but admitted that they were displeased with its design and content. Most participants (5 out of 6) have not had any experience in developing their own materials for LMS, though they would like to improve their technical skills as well as instructional design skills. All the teachers often created and used .pdf documents and Power Point presentations (for face-to-face lessons), and only 2 used interactive tools and special programs (test-makers, quiz-makers like Hot Potatoes), though this process lacks systematic planning and reflexive attitude.

As for motivation level skills, 4 of 6 claimed that there were different bureaucratic and financial obstacles as well as technical limitations (lack of the Internet access in Universities' classrooms, impossibility to hold language classes in the computer labs) preventing them from using technology in their practice on a regular basis or as M. Dooly put it "…teachers are often working in less than ideal environment" [6, p. 366].

3.6   Second Questionnaire Analysis

In order to find out if the ICT competence for languages teachers differ from the ICT competence for University teachers from other fields, the second questionnaire was designed. The questionnaire was focused on the issues presented in Table 1. Totally, 21 participants from a group of 28 teachers who just completed the above mentioned SPbPU ICT course responded to the on-line questionnaire.

Table 1. Results of analysis of Questionnaire 2

	Question	Analysis of answers	Comments
1	The subject area of lecturers	8 language teachers; 8 specialists from economics and management domain; 1 applied psychologist; 2 teachers from engineering domain (metallurgy); 1 IT specialist;	The majority come from Humanities and Economics Departments showing that teachers from these domains feel the need to improve their ICT competence
2	Self-evaluation of ICT skills using three-point scale: beginner - experienced user - professional level	beginner - 0, experienced user - 71%, professional level - 29%	
3	Aims and objectives of using ICT for professional needs	Most participants use e-mail and forums for communication, and web search to look for teaching resources	

(*continued*)

Table 1. (*continued*)

	Question	Analysis of answers	Comments
4	Services and programs used	76% of all the participants stated that they use only e-mail, 23% have experience in using distant courses in LMS. Practically nobody does blogging or has accounts in social networks	This is in a good agreement with the answers of the Survey 1 respondents (see Sect. 3.4 above)
5	Professional development in the field of ICT	Most teachers mentioned the in-service course in ICT provided by SPbPU	
6	Attitude towards using ICT in teaching, e.g. the desire to develop professional competence, obstacles teachers encounter when using ICT, etc.	All the participants stated that they are ready to use ICT in teaching. As for the obstacles, about 30% mentioned financial problems (hardware and software upgrade, research funding, etc.). More than a half sees a lack of instructional and technical support as the main obstacle	
7	BIO data (experience level), e.g. age, position, and teaching experience	90% are aged 35–55, 71% have been teaching for more than 15 years (others slightly less)	
8	Lecturers were asked to express their ideas of what an ideal professional development course should be like, and what areas need to be highlighted during the course	Answers varied including LMS Moodle administration, Financial Analysis software, MatLab, DBMS, Mathematical Modeling applications, Visual Design software, etc. However, 30% of the participants were unable to identify the particular services and software they would like to familiarise with. Only one participant demonstrated the readiness to master any software that could be of any interest in his field	We suggest that this very ability to specify professional needs in the field of ICT could serve as a sensitive indicator in identifying the real level of professional ICT competence
9	Awareness of any national or international standards concerning ICT competence of a university teacher (e.g. UNESCO ICT Competency Framework for Teachers, Russian Federal State Standard for Higher Education Institutions)	71% of the participants stated that they are unaware of ICT competence frameworks, either local or international	This result shows that self-evaluation of ICT competence is unlikely to include formalised requirements for professional ICT competence of university teachers

4   Outcomes

Based on the above data we defined the objectives of the in-service professional development course for foreign language teachers and identified core blocks of its content. The agenda included technical skills development (searching for information on the internet, use of specific computer programs, e.g. test-makers; working in LMS/VLE), instructional technology (activities aimed at cognitive and motivation level skills development: evaluation of teaching resources, use of computer-based and internet-based activities and tests, using social networks for teaching purposes, assessment, e.g. peer assessment in LMS, etc.), practice (aimed at developing experience level skills, e.g. designing and moderating Moodle courses and computer-based activities). All these blocks are *not* taught separately in a lecture form, but rather studied by course participants under the supervision of the teacher instructor, in an integrated form. The detailed description of the content is given in Table 2.

Based on our research and the results of needs analysis we published a coursebook (in Russian) [12] E-learning and CALL, accompanied with a Moodle course. The aim of this was to allow the participants to have access to all the course, no matter which format of delivery (electronic or printed) they preferred. We also assumed that not all teachers had an opportunity to attend 100% of face-to-face sessions, so they would need additional practice and support.

The Moodle course we designed contained resources and activities that help teachers practice real ICT skills by creating their own teaching materials and uploading them to the Moodle site. Another feature was that the resources were presented so that, for example, a wiki activity was explained through a wiki page; the study of hot potatoes quiz was presented by a series of hot potatoes quizzes, etc. This way of course delivery was aimed at increasing motivation and making the course more practical and task-oriented.

As mentioned above, the 72 h course lasted for 3 to 6 months, depending on how many hours a week teachers were able to attend. A specially designed Moodle course was used to accompany the learning process, which allowed teachers to get 24/7 support. At the end of the course all participants were required to develop their own set of activities in the form of a Moodle course.

The professional development course was based on the constructivist approach, which meant active participation in the formation of the course agenda, collaborative work, group work and peer-assessment. This approach also helps built professional networks, develop creativity and improve motivation.

On the completion of the course we again analysed teachers' ICT skills (cognitive, technical, motivation and experience level skills), paying more attention to the teaching resources and practical application of the skills. Each category of skills was assessed using scores from 0 (no skills in this area) to 3 (professional level). The criteria of the assessment were based on ICT4LT Questionnaire and Can do List (http://www.ict4lt.org/en/ICT_Can_Do_Lists.doc), developed by the author and described in a PhD thesis by Kabanova (2014).

To check the assumption about significant (as opposed to negligible) increase of teachers' professional ICT competence on completion of the course, Wilcoxon

Table 2. In-service training course syllabus

Topic	Modules and topics	Content
1.1	**Module 1 Introduction to e-learning and CALL** Introduction to E-learning	Basic theoretical concepts of e-learning. Philosophy of digital age. Terminology, legal issues, government acts and laws concerning use of ICT in formal education (mostly HE institutions). Success stories in implementing e-learning, best practice and case studies
1.2	Constructivist and connectivist approaches to e-learning. Networked learning	Social constructivism and connectivism in e-learning: fundamentals, instruction strategies, learner autonomy. Active learning, interaction, project work. Networked learning, social media and open education. The phenomenon of MOOC, its advantages and limitations
1.3	Introduction to CALL	Definitions of CALL. The development of CALL. CALL programs and activities. Roles of the computer, tutor and student in FL learning and teaching. Teaching in the computer network environment, self-access learning, distance learning
2.1	**Module 2 Instructional design for Foreign language teaching using ICT** Introduction to Instructional Design	Teachers as designers in digital age. Instructional design principles. Visualization, interaction (human-machine and human-human). Designing presentations. Goal setting and outcome planning in language teaching
2.2	Information search and hypertext	Using hypertext in instructional design. Searching for specific information. Information relevance and authenticity in language teaching. Copyright and licensing
2.3	On-line resources, encyclopedia and libraries in FLT	Web resources for FLT. Sites, podcasts, video. E-libraries, dictionaries, databases. Translation software. Delivering and receiving multimedia
3.1	**Module 3 Computer programs and internet services for FLT** Test-makers. Hot Potatoes	Test-makers, quiz-makers (software and internet-based templates). Hot Potatoes Quizes: matching exercise, crossword, multiple choice exercise, open cloze. Creating and using hot potatoes web pages
3.2	Web services in FLT	Web 2.0. Social networks (practical use in FL teaching and learning). Professional networks (for FLT and CALL professionals). Wikis, blogs, chatrooms, forums in ELT

Table 2. (*continued*)

Topic	Modules and topics	Content
3.3	Webinars in FLT	Web-conferences and webinars in language teaching. Synchronous activities in CALL. Software and web services for webinars (Adobe Connect Pro, Big Blue Button, Open Meetings, Sclipo). Methodology of preparing for and holding an on-line seminar
4.1	**Module 4 LMS MOODLE** Starting with Moodle	Moodle terminology (course, course section, resource, activity, editing mode, etc.). Course menu. Creating the course. Course settings, main page. Files and folders
4.2	Course administration and settings	Editing mode. Moodle roles, Moodle labels (icons). Text processing in Moodle. Uploading files (text, audio, video, presentations). Hyperlinks in Moodle
4.3	Moodle Resources	Creating, managing and using Moodle resources (files, web-pages, text pages, labels, directories). Teaching strategies for using Moodle resources (multimedia, links, web-pages) in FLT
4.4	Moodle Activities	Creating, managing and using Moodle activities for FLT (hot potatoes quiz, assignment, forum, glossary, wiki, workshop, and test). Project work, collaborative work and peer assessment in Moodle
4.5	Assessment in Moodle. Choosing Moodle features for your course	Communication and assessment in Moodle. Messages, Scores in Forum, scales, statistics, reports in Moodle. Groups and roles for assessment. Choosing activities to reach the goals of the course

Signed-rank Test (in this case, repeated measurements on a single sample) was used. The calculations were made automatically on-line, using the template provided on the site for psychological research and statistics (http://www.psychol-ok.ru/statistics/wilcoxon/).

The values were calculated for n = 50 (50 participants of the face-to-face course, which was maximum for the template mentioned). The critical values for this number are T = 466 at $p < 0.05$. Our obtained value was T = 28, which is less than critical values, so we rejected the null hypothesis and accepted the alternative hypothesis: growth of the participants' ICT competence owes the in-service training course.

5   Conclusions

Stanley suggests that the availability of technology today makes it impossible to follow it all, as well as incorporate all its forms into curriculums [17]. Our findings show that the issue of teachers' ICT skills development may be tackled with careful needs analysis, followed by skills-based course design. However, this approach does not guarantee success if technical, organizational, and motivational problems are not taken into account.

According to Liu and Kleinsasser, there are lots of questions yet to be answered by researchers in this field, concerning, for example, teachers' reflection on students' feedback after implementing CALL, institution administration support, and teachers' willingness to apply CALL in classroom instruction [15].

The content and agenda of the in-service hybrid course, based on the needs analysis, allowed the participants to increase significantly the level of professional ICT competence with the help of the instructor. However, the content alone cannot guarantee successful implementation of the professional development program. To reach sustainable development of teachers' ICT skills, it is vital to choose appropriate topics, methods and teaching techniques applicable for particular institutions and relevant for their current instructional settings.

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