This study investigates the adequacy of translation and adaptation of the Inventory of Activities of Learning Technologies at the University (IAATU) in the national context of Russia. The IAATU is proved to be internally consistent and well comprehended.

Key words: competencies, University teachers, technology based learning activities, confidence, instrument, cross-cultural, Russia.

Introduction
UNESCO ICT competency framework for teachers (UNESCO, 2011) emphasizes that it is not enough for teachers to have Technology Information and Communication (ICT) competencies and be able to teach them to their students. Evaluation of professional competence is performed by comparing the obtained results with some norms and averages, as well as with the results of previous diagnosis to identify the nature of the advance in the development and professional growth of a teacher and leader (Simonov, 2010). In addition, the fact of having extensive skills in ICT use has not been linked to their use in academic activities: the abilities developed through using the computer do not seem to be transferred – or at least not to the degree expected – to teaching (Romero, Guiter, Sangra, & Bullen, 2013). According to Marcelo & Yot (2015), to incorporate technologies into their teaching, teachers need to design teaching-learning experiences based on three interrelated TPACK components. These are the content to be taught (content knowledge), the pedagogical model upon which teaching is based (pedagogical knowledge), and the technological resources that teachers select at a given moment (technological knowledge).

This subject is considered to be an important research issue, since adopting a new type of learning requires a specific study on whether the audience and the teachers are ready for new forms of education. It is impossible to introduce new technologies if the target audience is not ready to absorb the information presented by new methods (Yanuschik, Pakhomova, & Batbold, 2015). In fact, it is necessary to understand how technology is taught and implemented in order to improve the developed competency and the technology used in learning (Lemon & Garvis, 2013). According to Hsu (2011), the activities teachers assign to students has been influenced by their own usage of ICTs. Recently, the relationship between teachers’ own ICT practices and the type of ICT instruments has been developed in order to assess the effective strategies to prepare prospective teachers for technology integration (Tondeur, Van Braak, Siddig, & Scherer, 2015).

The IAATU was developed focusing on the didactic aspect and represents the design of learning activities enriched with technology. In the course of the research, the authors analyzed how different digital technologies are integrated into the classrooms of the Andalusian universities. Since the level of technology integration in learning sequences is known (Marcelo, Yot & Mayor, 2015), the Cronbach’s alpha coefficient for the IAATU is 0.958. It has 38 items distributed among 1 to 6 on a double Likert-type scale. One refers to the frequency with which it is used (usage level) and the other refers to the degree to which the teacher feels confident when using the activity (confidence level), Cronbach’s alpha = 0.937. According to Hsu (2011), the activities the teachers suggest to the students are influenced by their own usage of ICTs. Therefore, there are variations in the educational use of digital technology by teachers. These patterns of ICT use emerge from the frequency of use (the amount of times they use it) and by the nature of the activity (the type of tasks and grouping when working with ICTs in the classroom) (Area-Moreira, Hernández-Rivero, & Sosa-Alonso, 2016).

Confidence is considered a strong predictor of teachers’ technology use (Wisniew, Venkatsh, & Abrami, 2006). To adapt a questionnaire related to this approach, particularly in Russia (Drovnikov, Vazieva, Khakimova, & Konysheenko, 2016; Moikina, 2015; Mirzaglova & Akhmetov, 2015; Enganova & Shutova, 2014); there is a lack of knowledge related to this approach, particularly in Russia. One possible strategy to cover up the lack of knowledge is to validate a Russian version of the IAATU (Marcelo, Yot, & Mayor, 2015). To adapt a questionnaire with documented validity rather than to create a new one is recommended (Beaton, Bombardier, Guillemin, & Ferraz, 2000; DeVellis, 2003; Lovelace & Brickman, 2013) under the condition that the construct exists in the target culture and the existing instrument measures it appropriately (Ertmer, Santo, & Guillemin, 2015). This instrument may help to understand how effectively university teachers in the context of Russia use the technology in the learning design.

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of educational practice development. Currently, the competency-based approach tends to be more holistic in terms of its structure (Ergunova & Shutova, 2014). According to Mokshina (2015), one of the important issues of the would-be teacher training in Russia is the lack of their practical preparation for professional activities. Despite this study’s findings, little is known about what technologies do Russian teachers use in their teaching design, in particular, those that are related to learning activities. The IAATU is useful to analyze how different digital technologies are integrated into the classrooms of the Russian universities and can also be used as an instrument to identify what type of learning activities based on technologies university teachers design in Russia.

An objective measure applicable to a university level will offer a start point to explore a multidimensional research on the developing teachers’ professional skills and competencies in Russia. There were two research objectives: the main one was to adapt and validate the IAATU in the national context of Russia, and the second objective was investigate how intensively the technology is used to design teaching-learning process in relation to teacher’s confidence.

Sample
The pilot-test (i.e. the Russian version of the IAATU) was conducted as an online survey from February to April. The sample included 310 respondents, 52.4% of them being female and 47.6% male. 43.7% of the respondents were in the age group of 31-40, 17.5% under 31 and 9.7% over 61. The teachers of Samara National Research University (Russia) made up 44.7%.

Methods
The evidence for the best method for cross-cultural adaptation of questionnaires is lacking, and back translation may not be mandatory (Epstein et al., 2015); the research involved individuals fluent in both English and Russian, as well as the committee to review the translation from English into Russian (Gersinger, 1994). The author’s gender or age in relation to usage and self-confidence level to measure the strength of association between two ranked variables: the level of use of digital technologies for learning activities and self-confidence, the Spearman’s rank-order correlation was used. The reliability estimation method Cronbach’s alpha was used to ensure internal consistency (Field, 2009; van der Palm, van der Ark, & Sijtsma, 2014) for the scales of level of use (0.916) and self-confidence (0.939), with a value above 0.957 showing very good reliability and internal consistency of the scale, which meets the criteria of reliability.

Results
According to the level of use (Cronbach’s alpha=0.916), three groups of learning activities are identified in relation to the mean: low level (mean 1.25), medium level (2.5-4) and high level (4.5-5). The two technology based learning activities used are of assimilative type, i.e. promoting the transfer of knowledge from the teacher to the student: (1) In my class I use presentations created using a computer program (PowerPoint, Prezi, Impress, etc.) to show students concepts and ideas regarding subject content (3.68) and (3) During my presentations for the students, I show simulations, demonstrations or examples based on digital resources, either my own, or available on the web, to clarify concepts and ideas (3.39).

For the other activities, another three items are frequently incorporated into teaching (M > 3.5): Information management, (10) I teach students to verify whether the information obtained is true or the information sources found when searching the Internet are reliable, (4.17); Communication, (23) I encourage students to present their results in a creative manner, using presentation infographics, presentations, concept maps, etc. (4.37). The five items whose high level of confidence over 3.5, however, items 10 and 23 have the highest level: 4.22 and 4.31, respectively.

The experimental type of activities (creating educational environment simulating the reality) have a low level of use (M<2.5) with the exception of (10) I design practical case studies, using digital resources (video, presentations, specific software, etc.), so that students can apply the theory learned to practice: 3.37 (medium level M=3.5).

Within the scope of the research, there were 103 teachers involved (the national academic staff in miniature), the null hypothesis suggested was that there is no association between the use of learning activity and self-confidence (r = 0). Statistical significance, set at p ≤ 0.05, indicates that the null hypothesis can be rejected. A statistically significant Spearman rank-order correlation means that if the null hypothesis is true, the probability of occasional strong correlation between the item use of a learning activity and self-confidence (rho coefficient 0.01) is less than 5%.

Considering the value of r indicating the type and importance of the linear association (Table 1), we know, first, that the relationship in all cases is positive (a high increase in self-confidence level takes place with an increase in the level of use and vice-versa). Secondly, the association is moderate (0.30 ≤ r ≤ 0.70) for items 1, 2, 3, 4, 5, 8, 10, 11, 14, 16, 18, 20, 25, 33, and 34, while for the rest of the items the correlation is strong (r > 0.70).

Based on the results obtained in Kruskal-Wallis Test, it can be asserted that there are significant differences in the level of self-confidence depending on the age. The p-value of less than 0.5 leads to rejection of the null hypothesis for the variables “age”. 
and “self-confidence” in items 11, 17, 21, 22, and 34. As for the activities of learning technologies in use and the variable of age, significant differences were found in items (11) and (20) with specific technologies (MindManagers, CmapTools, etc.) to help students understand the structure and relationship between subject concepts (0.20 and 1.17) that facilitate interaction with students outside the classroom by means of cellphone applications such as WhatsApp, Line, Twitter, Facebook, etc., to motivate exchange of information, resolution of doubts (0.02).

Mann-Whitney U tests were conducted to compare differences between gender and self-confidence. Difference was found between men and women in items 2, 8, 11, 14, 20, 23, 25, 33, 34, 37. As for the activities of learning technologies, significant differences were found in items 10, 13, 18, 19, 21, 23, 25, 35, and 37 depending on gender.

Limitations

The sample size in the present study (N = 103) might be considered to be low (Tabachnick & Fidell, 2009). The communalities values in the present study were above 0.5, therefore, a sample size between 100 and 200 is sufficient (Field, 2009). Moreover, a small sample is commonly understood as any sample that includes 30 or fewer items, whereas a large sample is one in which the number of items is more than 30 (Kothari, 2004). Nevertheless, it is important to note that generalizations of findings should be made with caution. In further research it would be desirable to replicate the study with different samples in other subjects, disciplines, and/or other universities in order to obtain results that can be generalized and allow us to determine if the probability of biasness of the results, future work should include an offline questionnaire in the sample collection (Tee, 2000). To overcome the possibility of biasness of the results, future work should include an online questionnaire in the sample collection (Tee, 2000). As technology integration practice is subject to change, future research should adopt longitudinal design to collect data across time.

Conclusions

Based on the analysis of the data obtained, we can conclude that there is relationship between self-confidence and intensity of use of the learning activities technology by the teachers. This finding is consistent with the findings of Marcelo et al. (2015) and the validity of IAATU. Intensity of use of learning activity depends on teacher’s self-confidence. The results of this study showed that the probability of using learning activity technologies is much higher if the teacher feels confident in using them.

The results of this research indicate that the teacher’s confidence has a strong impact on the intensity of technology use (Wozney et al., 2006) and conform with the outcomes of the other empirical research (Lemon & Garvis, 2016; Greener & Wakelink, 2015; Bennett, 2014). Emter & Ottenbreit-Leftwich (2010) suggest that an increase in teacher’s confidence is connected with achievement of expected learning outcomes. However, more evidence is necessary to better understand this process.

Learning activities based on technology is a resource-intensive learning strategy that requires reliable and valid evaluation tools to measure effectiveness of the educational process. Due to the fact that testing for validity is an ongoing process, the properties of the IAATU should be further validated in different cultural contexts. The present results must be considered as a contribution to this process. As a starting point of a multidimensional approach, this research describes the different ways the teachers use technology in educational purposes, and also offers an instrument adapted in the national context of Russia for future research. This study is expected to shed light on developing teachers’ professional skills and competencies in Russian universities.

Table 1. Correlation coefficient Spearman Rho for different items

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<th>Item</th>
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<tbody>
<tr>
<td>Coefficient</td>
<td>0.522</td>
<td>0.598</td>
<td>0.561</td>
<td>0.676</td>
<td>0.661</td>
<td>0.769</td>
<td>0.704</td>
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<td>0.762</td>
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<td>Sig. (bil)</td>
<td>0.000</td>
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<td>Item 10</td>
<td>0.641</td>
<td>0.586</td>
<td>0.810</td>
<td>0.754</td>
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<td>0.784</td>
<td>0.695</td>
<td>0.840</td>
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<td>Sig. (bil)</td>
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<td>Item 19</td>
<td>0.771</td>
<td>0.576</td>
<td>0.807</td>
<td>0.843</td>
<td>0.742</td>
<td>0.720</td>
<td>0.643</td>
<td>0.803</td>
<td>0.795</td>
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<td>Item 28</td>
<td>0.746</td>
<td>0.779</td>
<td>0.742</td>
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<td>0.594</td>
<td>0.859</td>
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<tr>
<td>Item 37</td>
<td>0.758</td>
<td>0.862</td>
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