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Report on the Akelius platform use sustainability

Scale-up in Italy s.y. 2022/2023

FONDAZIONE ISMU
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Acronyms

DITALS – Didattica dell'Italiano come Lingua Straniera (Teaching Italiana s a Foreign Language)

HD – Help Desk

ISMU – Iniziative e studi sulla multietnicità (Initiatives and studies on multiethnicity)

IC – Istituto Comprensivo (Comprehensive Institute)

IT – Information technology

ITA L2 - Italian as a second language

PC – Personal computer

UNICEF – United Nations Children's Fund

Executive Summary

This report analyzes the essential elements and requirements for the sustainability of using the Akelius app by ICs **(Istituti Comprensivi)**[1] without the support of a scale-up project[2]. Only those requirements defined as essential are shown with a distinction between (a) ICs involved in the 2022/23 scale-up project (whose continued use of the Akelius app can rely on the support received from the project) and (b) ICs not involved in the 2022/23 scale-up project (which are therefore expected to use the Akelius app without any support).

The table shows four main evidences:

- For all the considered dimensions, several *essential requirements* are indicated: requirements related to **technological**, **organizational** and **professional** dimensions are formulated according to the same *logic,* while **financial sustainability** with the specific method used for its assessment;
- The technological and professional dimensions of sustainability include most essential requirements. In particular, the **professional dimension** emerged as a core requirement, internally articulated in at least 4 different sub-dimensions: **digital general skills**; **skills related to Akelius app** use; **ITA L2 teaching skills**; personal **motivation and engagement** in using Akelius app;
- Due to the peculiarity of the Akelius project funding scheme, **financial** sustainability has been calculated only for ICs involved in the s.y. 2022/23 scale-up: the assessment led to the quantification of the contribution (quite limited) each school should bear after the scale-up conclusion;
- **ICs *not* included** in the s.y. 2022/23 scale-up must confront (not surprisingly) a higher number of essential requirements than schools involved in the scale-up.

Essential requirements for the Akelius app use sustainability (without scale-up project support)

Dimensions	ICs involved in the Akelius project in 2022/2023	ICs not involved in the Akelius project in 2022/2023
Technological	Internet connection (well operating and stable); number of devices (tablets) consistent with students' number and platform use scheme	Internet connection (well operating and stable); number of devices (tablets) consistent with students' number and platform use scheme
Organizational	IT expert (internal); suitable spaces for small-group or individual use of the Akelius app; tablet storage secure place in classrooms	External help desk (or equivalent service/support); IT expert (internal); suitable spaces for small-group or individual use of the Akelius app; tablets storage secure place in classrooms
Professional	Skilled teachers in ITA L2 teaching in a blended environment; didactic materials on using the Akelius app; motivated and engaged (in using the Akelius app) teachers	Skilled teachers in Akelius app use; digital device use in general; ITA L2 teaching in a blended environment; motivated and engaged (in using Akelius app) teachers
Financial	Post-scale-up, each educational institute is expected to contribute €4,924 for tablet replacements only, with distinctions between schools and "out-of-school" institutes influenced by differing Ukrainian student populations in 2022[3]	Not analyzed

[1] The "Istituto Comprensivo" is a public education institution that generally includes one or more primary and lower secondary schools.
[2] UNICEF promoted, in collaboration with the Akelius Foundation and in partnership with the ISMU ETS Foundation, the Akelius Digital Language Learning Courses, the e-learning app for teaching ITA L2 in primary and lower secondary schools. The initiative, built on the early results of the pilot phase launched in September 2021 and documented by UNICEF Innocenti – Global Office of Research and Foresight, was conceived as a scale-up of the Akelius project and embedded in UNICEF's response to the Ukrainian emergency, to support the Italian language learning and inclusion of Ukrainian refugee children in Italy.
[3] In 2022, the first learning activities were carried out by out-of-school settings in the summer. An intensive course was held in July by the association "Scuola Prestigio" (Rome and Ostia). The summer course represented a peculiar case because of the high turnover of Ukrainian students arriving in the city or being transferred with their families to other areas of Italy or whose families had decided to return to Ukraine.

1. Introduction and methodology

This report is focused on the **sustainability** of Akelius app use after the conclusion of the scale-up project and with specific reference to Italy. More in detail, sustainability refers to *Italian L2 learning activities targeted to NAIs attending primary and lower secondary Italian public schools, delivered through the Akelius app with a blended learning model*[4].

The schools for which the use of the Akelius app will have to be sustainable (without the Akelius project's support) are *those involved in the scale-up project* but also schools which did not participate in the scale-up project (and therefore totally new to Akelius app). These two types of schools do not have the same position concerning Akelius app use and experience; therefore, they will be kept distinct in the report when necessary.

Focusing on sustainability as just defined means identifying *the main **conditions** an average school (already involved/not involved in a scale-up project) must comply with to allow Akelius app use to be sustainable without scale-up project support.*

This assumption is consistent with a definition of sustainability as the *ability/possibility for an activity (or a set of activities/actions) to continue after the conclusion of dedicated funding and/or in the absence of support (of any kind) it has temporarily received.*

For Akelius app use, four **dimensions** of sustainability have been identified (each one including a certain number of conditions):

1. **Technological**: this dimension covers the availability of technological devices (tablets, computers), a stable and well-operating Internet connection, power cables and electrical outlets, as well as the electricity;
2. **Organizational**: this dimension includes the different schemes which may be implemented for using the Akelius app in Italian public schools (primary and lower-secondary) (e.g., group/individual courses; in/out of classroom; during school time or not; employing specialized/not specialized or volunteer teachers); the level of endorsement by school directors; the availability of suitable physical spaces for using the platform;
3. **Professional**: this dimension is linked to teachers' digital, teaching ITA L2 and relational skills but also to teachers' motivation and engagement in using the platform in a blended learning mood;
4. **Financial**: this dimension is linked to the project's sustainability from a financial point of view. It involves comparing the project's inward and outward cash flows and evaluating the movement of money into and out of the project over a specific period.

In operational terms, the identification of the sustainability conditions which will be proposed in this report passed through the following steps:

[4] We refer here to 3/2023 Sustainability Evidence Protocol.

A. The ex-ante desk definition of the conditions (for each dimension except financial sustainability) allowing the Akelius app to use sustainability without the support of a scale-up project. This step was mostly based on the analysis of the scale-up project monitoring data and on documents concerning Akelius project implementation in other Countries[5]: also, the Akelius app Teachers' Manual[6] was used in this step, which was finalized in April-May 2023;

B. The on-the-field data collection about the key conditions (organized in the 4 dimensions above presented) must be complied with to ensure the Akelius app use sustainability. This step was implemented – for technological, organizational and professional dimensions – with some dedicated questions in Schools and Teachers surveys but, above all, carried out 11 semi-structured at-distance interviews to school directors and/or teachers' referent for Akelius project involved in scale-up. This second step was implemented in June-November 2023. For financial sustainability, implemented in October-November, a desk analysis based on project's physical and financial key data was finalized, also comparing a with-the-project scenario with a counterfactual baseline scenario without it (this baseline scenario reflecting what would occur in the absence of the project);

C. The desk final formalization of the sustainability conditions (October-December 2023).

As mentioned, Step B's core activity for technological, organizational and professional dimensions has been the interviews with a panel of scale-up schools. In detail, 14 schools have been identified based on the criteria indicated below and contacted to assess their availability for an at-distance interview[7], 11 have been effectively interviewed.

Here below is the list of criteria used for identifying the schools:

1. have obtained a high number of tablets (for students and teachers) in relation to the total number of students and teachers in each school;
2. have involved a (relatively) high number of students in ITA L2 courses using the Akelius app in relation to the total number of eligible students;
3. be equally divided between primary and lower secondary schools;
4. be equally divided as well between schools which started Akelius app use before March 2023 and schools which started Akelius app use after March 2023;
5. include big-size and small-size institutions (but complying to criteria 1 and 2 above);
6. include schools with a consolidated tradition of ITA L2 courses (independently of delivery forms and architectures) and schools with poor/no traditions of ITA L2 courses.

In the next paragraphs, the most important and essential requirements for *sustaining* the use of the Akelius app will be presented, first proposing some overall and general conclusions and then distinctly for each sustainability dimension.

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[5] UNICEF-Innocenti, *Unlocking Learning. The use of digital learning to support the education and inclusion of refugees and migrant children in Bosnia and Herzegovina* (by Svetlana Poleschuk, Andrea Soldo and Thomas Dreesen), January 2023, Florence; UNICEF-Innocenti, *Unlocking Learning. The use of digital learning to support disadvantaged children language learning and social inclusion in Italy* (by Svetlana Poleschuk, Thomas Dreesen, Barbara D'Ippolito, Joaquin Carceles Martinez Lozano), January 2023, Florence.

[6] UNICEF-AKELIUS, *Il corso digitale Akelius per l'apprendimento delle lingue in modalità ibrida (Manuale per gli insegnanti),* 2019 edition.

[7] The semi-structured interview track is in the Annex. After the initial contact, 11 school directors and/or teachers' referent for Akelius project accepted to be interviewed: their schools were located in the areas of Milan (5), Rome (3), Bologna (2) and Trieste (1). All the interviews (at-distance) have been conducted between the 13th of October and the 6th of November.

2. The technological dimension of sustainability

Technology-related essential requirements (for Akelius app use without the project's support) are quite easy to identify. The first one is the availability of a well-working, robust and stable **internet connection**. With a principal's words, *a good internet connection is essential" (INT8).*

This condition is not only indicated – by the interviewed school directors /teachers-referent- as crucial for (Akelius app use) sustainability but also generally complied by almost all the scale-up schools. In fact, only two school directors/teachers-referent stated that their school had no good internet connection during the scale-up (but it will be fine in the 2023/24 school year).

This overall picture is confirmed by the answers to the specific question in the school survey (N=50) where "Internet connection quality and affordability" is rated 5 (the top score) by 36% of respondents and 4 by 40% (2 and 3 scores concentrate only the 24% of schools).

As stated in the UNICEF-Akelius Initiative's Guidelines[8], the availability of a good connection represents a requirement to ensure effective use of the Akelius app:

- *In the section "allocation of dedicated space for teaching with Akelius - 2.1", it is reported that it is easier to set up a proper internet connection in one location of the school than in all classrooms. à However, it should be underlined that it is very rare for a comprehensive school to provide a proper connection, especially a Wi-Fi connection, just for a specific location. For this aim, using a wired connection could probably be better, but it would require PCs rather than tablets. Accordingly, comprehensive schools should guarantee a very strong Wi-Fi connection to be available in all classrooms.*
- *In the sections "Allocation of dedicated space for teaching with Akelius - 2.1" and "Tablet Management - 2.3", a good connection is essential in order to guarantee the updating of the devices in terms of application and contents (two upgrades per year).*

Should a *good* internet connection be missing, a viable solution for sustainability – which has been implemented during the scale-up projects – is using the personal smartphone hotspot[9] or the so-called *interactive whiteboard*[10]. According to a school director, "sometimes we have a decent connection, sometimes it skips; we reconnect it, but there are moments when it skips, and the student cannot use the platform. In these cases, we switch to the *interactive whiteboard* or, if not available, we pass to *traditional* didactics" (INT8).

[8] It has to be noticed that these Guidelines are global and involve overall instructions that come from different contexts and education settings.
[9] A solution not indicated in UNICEF-Akelius Initiative's Guidelines (Section 1.1).
[10] LIM-Lavagna Interattiva Multimediale, in Italian.

Another possibility is using the Akelius e-learning app offline if the internet connection does not work well. To this aim it's needed to download all the contents preliminary. It is also important to point out that teachers subsequently should synchronize students' progress with a new online access.

This is a solution that could (temporarily) back up the absence of an internet connection as an essential requirement.

According to the UNICEF-Akelius Initiative's Guidelines (section "Specifications for IT Equipment" - 1.1), the Akelius e-learning app can be used both online (the user gets access to the latest/newest version of the language courses) and offline (after some time, the user gets access to a version of the language courses that may need to be updated).

The second essential requirement related to the technological dimension of sustainability is the availability of **digital devices**[11]**.** In the interviews, the devices referred to are *exclusively* tablets, PCs have never been mentioned. As one school director said, *"the availability of devices … and the fact that UNICEF donated the tablets really made the difference"* (INT3). According to the school directors/teachers-referent interviewed, all the schools involved that asked for tablets through the Help Desk (HD) service have been provided with them. In this regard, the quality of digital technologies for learning (workstations, computers, tablets) used in schools *before* the Akelius project has been mapped through the ISMU school survey (N=50); 54% of schools rated 4 their quality (out of 5) while 28% rated 3. However, no (Akelius e-learning app use) sustainability is conceivable without tablets (*one per student*, at best), which must absolutely be assumed as an essential requirement.

Should tablets not be available, an alternative – according to some school directors/teachers-referent – could be using the platform through the mobile devices (basically smartphones) of the NAI students themselves (but this seems quite hardly feasible for primary education students who generally do not have their own smartphones or equivalent). On this point, a school director affirmed that *"[Akelius] is a platform for newly arrived children, so we could ask them to use their personal devices. This [the use of personal devices] has probably happened in all schools with Google Translate, especially at the beginning with those who cannot speak and understand English, because usually English is the basic communication language with NAIs, but also with Arabic-speaking and Chinese, when they do not understand English, the translator on their own devices is very often used"* (INT3).

As mentioned in the UNICEF-Akelius Initiative's Guidelines (section "Specifications for IT Equipment" section - 1.1), PCs, tablets and smartphones are indicated as devices that can be used with the Akelius e-learning app. Tablets are identified as the preferable option. Furthermore, the Guidelines specify the type of tablet suitable for the Akelius e-learning app (e.g., Samsung Galaxy Tab S6 Lite – 128 GB, Samsung Galaxy Tab A8 10.5 – 128 GB, Lenovo Tab M10 HD – 128 GB). In

[11] This aspect is relevant also for project's financial sustainability (see the dedicated section).

one case, the school director reports this limitation in compatibility: "the Akelius e-learning app only works on Samsung and then it is essential to have this type of tablet" (INT10).

Another less crucial but equally essential requirement for (Akelius e-learning app use) sustainability is the availability – in each school – of a suitable number of power sockets for charging the devices.

In conclusion, the technological dimension of sustainability is fundamentally based on two essential requirements (which must be provided without the project's support). The first one is an excellent and easily accessible internet connection covering all the school buildings, not only IT-dedicated classrooms or laboratories. This requirement is linked to the Akelius e-learning app being a digital object and the most common scheme used for accessing and navigating the platform (see above). In particular, the core scheme is using the platform in small groups during school time, which means that the group leaves the class and works outside it, in another *space*, with the teacher. This implies a well-functioning internet connection all over the school building. The same is true if students individually use the Akelius e-learning app: in this scheme, in fact, the platform is used in the classroom, and, therefore, a good connection allows for different digital-based activities by the same class.

3. The organizational dimension of sustainability

The organizational dimension of sustainability has been declined along two sub-dimensions:

- a material/structural sub-dimension, basically regarding learning spaces;
- a soft sub-dimension covering Akelius e-learning app use schemes/models (how many students, where, when) and non-teaching skills (typically digital technologies technicians/experts).

In general, however, all the interviewed school directors/teachers-referent agree that no *special* organizational requirements are required to make the use of the Akelius e-learning app feasible/practical.

More details are needed for the sub-dimensions mentioned above.

Starting from material/structural requirements, the availability of a computer classroom (a resource in all the schools whose school directors/teachers-referents were involved in the interviews) does not emerge as an essential requirement. It is usually mentioned as an accessory, useful, an asset that can make the Akelius e-learning app use easier, but not something a school must have.

According to a school director, "the computer room could make listening activities easier [Akelius e-learning app] since there are so many activities of this kind on the a*pp. Then having a dedicated classroom where children can listen using headphones and so on can be very helpful"* (INT6). In another school director's opinion, the use (and necessity) of a computer room depends on the scheme (model) used for delivering (also outside Akelius project) ITA L2 teaching: for example, with large groups of NAI students, *"we tend to use the computer room … because if we have problems with the internet connection, we can use our interactive whiteboard"* (INT8).

Another argument supporting the position that a computer room is not an essential requirement (for Akelius e-learning app use sustainability) is that if the school has a well-working internet connection, many different spaces are available for students to use through their tablets, Akelius e-learning app. In the words of a school director: *"if the school has a good connection, it is possible not to work in the computer room with small groups; we have different spaces in the school, and even if the computer room is occupied, we have a multifunctional room, and we can work there, with tablets of course and headphones"* (INT8). It should be underlined, however, that the school of this last interviewee can count on a multifunctional room and makes explicit reference to a small-group Akelius e-learning app use scheme (two circumstances that relativize a bit the position from which a computer room is not an essential requirement).

Only one of the interviewed school directors considers having an Akelius-dedicated classroom, not necessarily a computer room, an essential sustainability requirement. In her words, it is essential *"because if you don't have a place where you can sit down with your pupils and practise, you can't use the platform"* (INT7). On this line, another school director specifies that *"our computer room is dispersive and cold; therefore, we prefer to use different, cosier rooms, which are better for children"* (INT11).

Classrooms, laboratories and – in general – dedicated spaces for Akelius e-learning app use have also been objects of question in the Schools survey questionnaire (N=50). The question was on the *school's physical space suitability for ITA L2 courses using the Akelius e-learning app* (during scale-up project): 68% of the answers defined spaces as *suitable* or *absolutely suitable* (40% *suitable* and 28% as *absolutely suitable*). The question did not mention the *computer classroom* but is largely consistent with the interviewees' position for which the scale-up involved schools had no relevant problems on this issue (and, therefore, will not have after project conclusion).

According to the UNICEF-Akelius Initiative's Guidelines (section "Allocation of dedicated space for teaching with Akelius - 2.1") the setting up of a dedicated space (e.g. digital language laboratory) is described as the ideal and preferred option to use the Akelius e-learning app. It has the following advantages:

- *the tablets and their accessories can remain permanently in the dedicated digital language lab, on dedicated desks or in locked cabinets, even reducing the risk of damages related to transportation;*
- *keeping tablets permanently in the same room allows for a system (including responsible staff) that can be easily organized so that they are always charged and ready to use;*
- *Setting up a dedicated space equipped with a proper internet connection allows students to use the Akelius language courses online and to facilitate their continued maintenance – updating the application and content, etc.*

Additionally, the dedicated space requires the following conditions (prerequisites) to be in place:

- *It should have at least one and - if possible - several electrical plugs to allow for easy charging of the tablets. à Only one school director mentions electrical plugs as a requisite to work well.*
- *Depending on how the Akelius e-learning app will be used, it may be useful or necessary to equip the digital language lab with a projector and a screen. à Some interviewed school directors/teachers-referent agree to use an equipped computer room.*
- *It should be locked and located in an area of the school that is not too exposed to external threats in order to store tablets. à All the interviewed school directors/teachers-referent report storing tablets in safe spaces (e.g. wardrobe with a lock), but not necessarily located in the computer room (e.g. classrooms, the vice-presidency, other rooms). This depends on the fact that the methods of use of the tablet are not strictly related to the availability of a computer room because it is too large to accommodate the limited number of NAI students Italian schools tend to work with.*

A second sub-dimension of the organizational sustainability of Akelius e-learning app use covers the availability of internal human resources. The reference here is mainly the need for a dedicated *technical* expert, specifically IT experts, who are able to support teachers in all the technical issues related to platform use (teachers-related requirements have not been included in organizational ones). The availability of this technical profile emerges as an essential requirement for using the platform. This is an example from one school director: *"we loaned to the students (...) the tablets you*

donated to us, and some of them created their own passwords. At the end of the school year, tablets had to be handed out by the students. I was not aware of the passwords they had entered. I was on holiday in July, and the IT technician raised the problem that 'the tablets are locked, there are passwords', and solved it" (INT3). The possibility for scale-up schools to use internal IT experts may be linked to the principal's endorsement of Akelius e-learning app use, which emerged from the schools' survey (N=50), and was *strong/very strong* for the 74% of the responding schools.

According to the UNICEF-Akelius Initiative's Guidelines (section "Allocation of dedicated space for teaching with Akelius - 2.1") the identification of a human resource responsible for the tablets and their maintenance is identified as one of the conditions to guarantee the setting up of the dedicated space. A "school IT staff" is also identified (UNICEF-Akelius Initiative's Guidelines, section 2.3) as the target audience for "tablet management" in general.

Another organization-related sub-dimension is the Akelius e-learning app uses *schemes* (models, solutions, etc.) with students, where each scheme is a combination of:

- Group versus individual activities (with the platform)
- In-class versus out-of-class activities
- In-school-time versus out-of-school-time.

This sub-dimension has not been posed in the interviews in terms of indication of a specific *scheme* (or a selection of those possible) as an essential requirement for (Akelius e-learning app use) sustainability. This is no surprise because the possibility of using different schemes (combining the above variable) *is* one of the distinctive features of the platform. However, from the interviews, some requirements related to the sustainability of the most applied schemes are made explicit.

As mentioned, most school directors/teachers-referent did not indicate a platform-specific delivery/using scheme, and only one school director identified *small group* as the preferred solution: *"We do not agree on one-to-one teaching, we prefer small groups or open classes. In the small group, students have a lot of fun because teaching is not based on traditional lessons but on involvement, play, and activation"* (INT9). If a tendency should be found, although not mentioned as a requirement, school directors/teachers-referent quite often indicate working with small groups of NAI students (on the Akelius e-learning app) as the most adopted solution.

The schemes used by scale-up schools for delivering ITA L2 courses outside the Akelius project may be considered a factor influencing the schemes adopted for the Akelius e-learning app. A specific question on this point was posed in the school survey (N=50), and here are the most frequent answers: 84% of schools use an "in-group, out-of-class, during school-time" model while 54% an "individual o in-group, in class" scheme (multiple answers allowed).

This point marks a deviation from the indications of the UNICEF-Akelius Initiative's Guidelines (section "Allocation of dedicated space for teaching with Akelius - 2.1"), which identify a group of approximately 25 students to well work with the Akelius e-learning app.

Again, on delivery/use schemes, all the school school directors/teachers-referent report that ITA L2 teaching, including using the Akelius e-learning app, usually takes place during ordinary school time, an option which can make the platform use sustainability easier without the project's support.

Finally, a specific mention should be made to the support given to schools by ISMU Foundation *help-desk*. This service may in fact be fully considered a part – although external to schools – of the organizational dimension of Akelius e-learning app use. In relation to sustainability, it cannot be considered an essential requirement but its importance *"especially for the schools who will enter the project as newcomers"* (INT10) has been underlined.

In conclusion, about the organizational dimension of sustainability.

No essential requirements may be indicated for Akelius e-learning app delivery/use schemes (on the contrary, its flexibility of use may be seen as a key condition for the sustainability of its use by different schools in different contexts), but both interviews and school survey show a clear tendency in giving priority to small-group or individual use of the platform by students. There are two main reasons for this:

- The first is that teaching ITA L2 is, in the Italian school system, mainly entrusted to teachers[12] that usually work with single students o small groups, supporting the *main* teacher(s) in managing BES students, including NAI;
- The second reason is that, due to the relation between *main* teacher(s) and ITA L2 teacher(s), these second- alternatively- support their student(s) inside the class (while the main teacher leads the activities) or takes the target-students out of the class, working with them separately.

Platform's small-group or individual use implies that, for storing tablets, the more suitable solution is multi-loading padlocked cabinets located in the students' classrooms and not in the computer room (or another common space). This solution, which refers to the material/structural sub-dimension of organization (see above), would allow teachers to easily manage tablets distribution to the *single* student (in case he/she would continue to work in the classroom) or to the small group members (who could bring the tablets to the chosen/pre-booked classroom).

Another important, but maybe not essential, requirement for (Akelius e-learning app use) sustainability is the availability of professionals dedicated to tablets (and Akelius technologies in general) care and maintenance. These technicians / IT experts should also, in the absence of the Akelius project's support, play the role that HD had in the scale-up, supporting teachers and school directors in managing platform technical issues.

[12] See the Professional Sustainability section for details.

4. The professional dimension of sustainability

As defined in *Sustainability Protocol*, this dimension includes teachers' (those involved in the project) digital skills, their competencies for teaching ITA L2, teachers' relational skills (targeted to students and colleagues) and teachers' motivation in using Akelius e-learning app (in a blended learning environment) as well as organizing and supporting its use by students.

Digital skills and ITA L2 teaching skills are both considered important (by school directors /teachers-referent interviewed) for platform use sustainability but, as already emerged in the previous paragraph, the second block of skills (ITA L2 teaching) emerge as more crucial (because platform's intuitiveness and simplicity of use would not require relevant digital skills).

To better understand the point, it is important to highlight that ITA L2 teaching is delivered in many diversified ways in Italian school practices, depending on the *resources* (teachers and funding) it can rely on. As for teachers, ITA L2 courses may be delivered by[13]:

- school ordinary teachers with or without specific training (on ITA L2);
- school (so-called) support-teachers[14] with[15] or without specific training (on ITA L2);
- external (that is, belonging to private or Civil Society Organizations associations) teachers generally with specific and certified training (on ITA L2).

In terms of funding, which impacts on school choices on ITA L2 teaching, the different possibilities are the following:

- internal (= school) funds (an option adopted by 64% of the schools involved in the survey[16]);
- external (public or private) funds (a strategy adopted by 50% of the surveyed schools);
- other sources (used by 20% of the survey schools).

Assuming this situation, ITA L2 teaching skills is the first sub-dimension to consider. According to a school director, skills in ITA L2 teaching are very important for using the platform at its best: *"in Italian L2 education, texts are very simple for a native, but they have to be carefully read and studied in advance to understand the difficulties a non-native can have and anticipate them. Unfortunately, a normal teacher hasn't this approach and the task [of teaching ITA L2] is often assigned to support teachers who, during their TFA[17], received an afternoon of training in teaching ITA L2. There is no*

[13] These options must be contextualized in the Italian in-force regulation for teaching ITA L2. A formal *class of competence* (the mechanism school teachers' recruitment is based on) dedicated to ITA L2 has been introduced in 2016 (DPR n. 19, 14/2/2016, Class A23) but no indications have been delivered in the following years about roles and functions A23-Class teachers should have. The consequence is that A23-Class teachers have been formally hired only by CPIA (Adult Education Institutions), which do not intervene in primary education. The paradox is therefore that A23-Class teachers (the only ones with skills and qualifications for teaching ITA L2) cannot formally be hired in educational institutions different from CPIA. This paradox explains the different options adopted by schools on the basis of the available resources.

[14] *Insegnanti di sostegno* in Italian.

[15] For example, *support teachers* in their initial training (TFA, Tirocinio Formativo Attivo, in Italian) attend at least one learning module on ITA L2 teaching.

[16] N=50.

[17] See above.

dedicated training" (INT9). However, she adds, *"I have to say that now many young substitute teachers specialize in ITA L2 or have a degree or attended courses for having DITALS or the specializations of the University for Foreigners of Siena or Perugia. All this is reflected in the quality of teaching"* (INT9).

The *mastery* of ITA L2 teaching skills is also mentioned as important for using the Akelius e-learning app in schools not involved in the Scale-up project. In fact, even though (see here below on this point) platform *"it is easily accessible and, let's say, quite intuitive to use: it does not require any particular IT skills nor teaching skills, but having these [teaching ITA L2] skills makes the use a little more effective and more sustainable in the long term"* (INT4).

On this issue it is also important to mention what emerged from the Schools survey (N=50), where a specific question was posed on ITA L2 teachers' profile, net of the Akelius project. Answers reported the following situation: 62% of schools use internally paid teachers *without* a formal specialization in ITA L2 teaching; 46% use internally paid teachers *with* a formal specialization in ITA L2; finally, 32% use externally paid teachers *with* a formal specialization in ITA L2 (more than one option was allowed which means that a school generally uses more than one teacher profile). A prevalence of ITA L2-trained teachers occurs, but the share of teachers without formal training in ITA L2 is not marginal (62%).

Regarding digital skills, they emerge (from interviews) as needed at an elementary level for using the platform. It is, however, worth mentioning that, except in one case, no school directors /teachers-referent mentioned the possibility of downloading the platform material and using it offline in case of problems with the network connection (an option which implies digital skills): other ways, very elementary (such as using the hotspot of their own phones), have been mentioned.

Somehow, between ITA L2 and digital skills are the skills strictly related to Akelius e-learning app use. Here, interviewees emphasize the need- for scale-up schools- to provide training, including peer-to-peer, on using the platform for teachers who did not participate in the training provided by ISMU. Therefore, this training can be an essential requirement, even more crucial for new schools that cannot count on scale-up trained teachers. According to a school director: *"in my opinion, it is internal training ... we know how to use the platform quite well, so if a colleague wants to approach it, we can give a hand, especially those who have done the training with ISMU during the scale-up. … Without the training, it would have been very hard to use the platform, because [platform use] is not so immediate, at least for us it was not"* (INT2). Another interviewee considers training indispensable since in its absence teachers *"cannot understand how to do the [platform] steps, how to enter, because it is not so easy to do all the steps"* (INT11); another one, finally, underlined that without dedicated training, teachers would use the platform as in teaching Italian L1 but *"the use of platform material as if it was for Italian L1 and not L2 is a mistake for which platform's great potential is not exploited"* (INT9); for another, *"all the teachers [using the platform] should do a refresh course on the use of the platform. Last year, my colleague and I used it but did not have the opportunity to disseminate it with the rest of the colleagues"* (INT1). Therefore, specific training on the Akelius e-learning app is considered useful for taking the most from it and/or making its use easier in a blended-learning environment. According to a teacher referent: *"in my opinion, you should also have the possibility to train at least one teacher, i.e. at least one teacher referent for the project, should be trained in the use of the platform so he/she can give guidance and support to those who then want to use it"* (INT4). This may be indicated as an essential requirement: one teacher (in the school) *has* the skills to support and/or guide colleagues in using the Akelius e-learning app. This expertise may consist, for schools involved in the scale-up, in peer-to-peer training by teachers who attended scale-up training: *"we can take advantage of the fact that since some teachers have already done the training, they could act as a sort of mentor to new teachers who have to approach the use of this App …. training … can also be*

delivered by our teachers; for example, two of us have been trained last year, so we could pass the contents to two or more colleagues" (INT6).

On a different position are school director /teachers-referent who affirm that, for a school not involved in 2022/23 scale-up, teachers need only basic digital skills for using the platform (*"the use of the platform by a school that did not take part in the project is very high; honestly it is a very simple platform to use"*, INT3; *"the platform is very intuitive ... it is not a matter of skills but of teachers' willingness to get involved, not of the school, but of the single teacher ... I do not think there can be difficulties in this aspect",* INT5; *"the Akelius e-learning app is also graphically very explicit in guiding teaching activities, so it is quite intuitive"* (INT6).

The interest of teachers in training (on Akelius e-learning app use) is another issue emerging from the interviews. Teachers need to be stimulated in participating to training, whose benefits are twofold:

- on ITA L2 teaching skills (which are, already highlighted, crucial for Akelius e-learning app use sustainability);
- on blended teaching methods skills (which are also relevant for platform use sustainability).

In the words of one school director: *"I think we should talk a lot about it, encourage participation and show that there is a possibility. Last year, we also did a training course on Italian for foreigners, held by our principal but open to other local schools, with a lot of material available online and the provision of information also on the Akelius e-learning app"* (INT5).

Teachers' **motivation**, not just in training on the Akelius e-learning app but – in a wider perspective- in using the platform, is indicated by most school directors for the Akelius project as necessary – more than digital and ITA L2 Teaching skills for using the platform. The priority of this element of the professional dimension is expressed by one interviewee as follows: *"Teachers must have a little bit of interest and willingness in hacking, in trying [using the platform] because everything has to be done by trial and error"* (INT7).

Teachers' skills and motivation importance for Akelius e-learning app use have also been explored using some questions in teachers survey conducted by ISMU. The figures below show the share of the "absolutely relevant" score (equivalent to 5/5) for each group of skills. An overall analysis of the answers given by teachers (assuming their scores as proxies of key requirements for platform use sustainability without the project's support) allows for the following evidence:

- Digital skills consisting of **Using teaching-supporting devices like tablets, computers, and smart-boards) (basic level)** and **Embracing game-based learning** are considered the most relevant (among the proposed digital skills);
- Relational skills proposed list do not show one/two skills clearly more relevant than the other, and none receives a high percentage of "absolutely relevant" rating. Only *Smoothing out differences and mediating disputes* obtains a slightly lower relevance rate, while the other four (**Explaining tasks and activities to be performed; Listening, looking and understanding students' perspectives; Persuading students to do what they are expected to; Managing time and deadlines**) get basically the same relevance scores;
- ITA L2 teaching specific skills emerge as the most relevant of the three blocks (considering the concentration of answers on 3, 4, and 5 levels, but especially on 5); among them, **Being able to understand Italian (written and spoken targeted to the specific learning group)** and **Assessing, adapting and using didactic materials already existing (targeted to the specific learning group)** are the two skills which concentrate the highest share of 4 and 5 scores.

In general, **ITA L2 teaching skills** are considered, by the teachers who participated in the survey, more relevant for using the Akelius e-learning app than digital skills (with the exceptions of *Using*

teaching-supporting devices like tablets, computers, smart-boards, basic level and *Embracing game-based learning*) and relational skill. This is consistent with what has emerged from school-directors/teachers-referent interviews and should be considered a key point for Akelius e-learning app use sustainability.

Fig. 1. Top scores (5/5) shared for each digital skill related to the Akelius e-learning app use

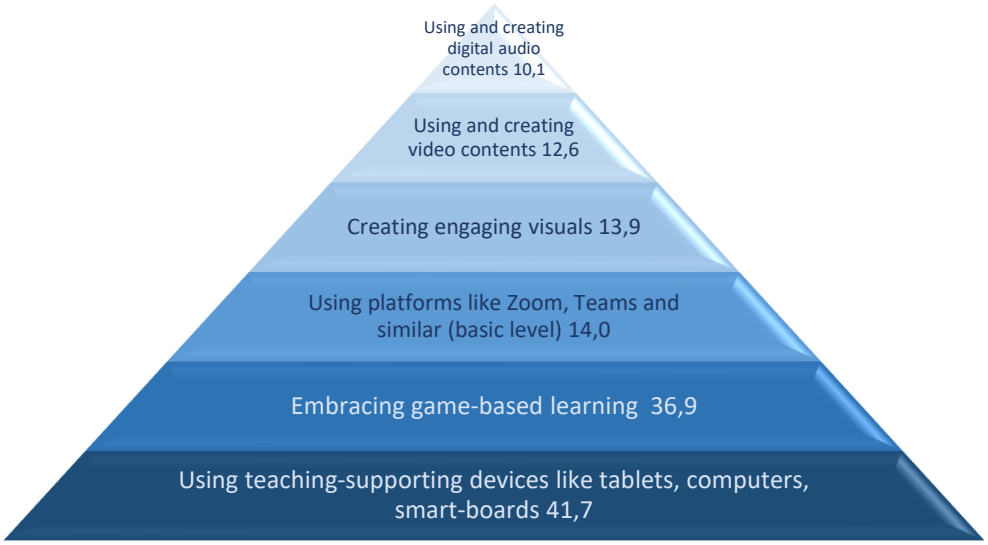


Fig. 2. Top scores (5/5) shared for each relational skill related to the Akelius e-learning app use

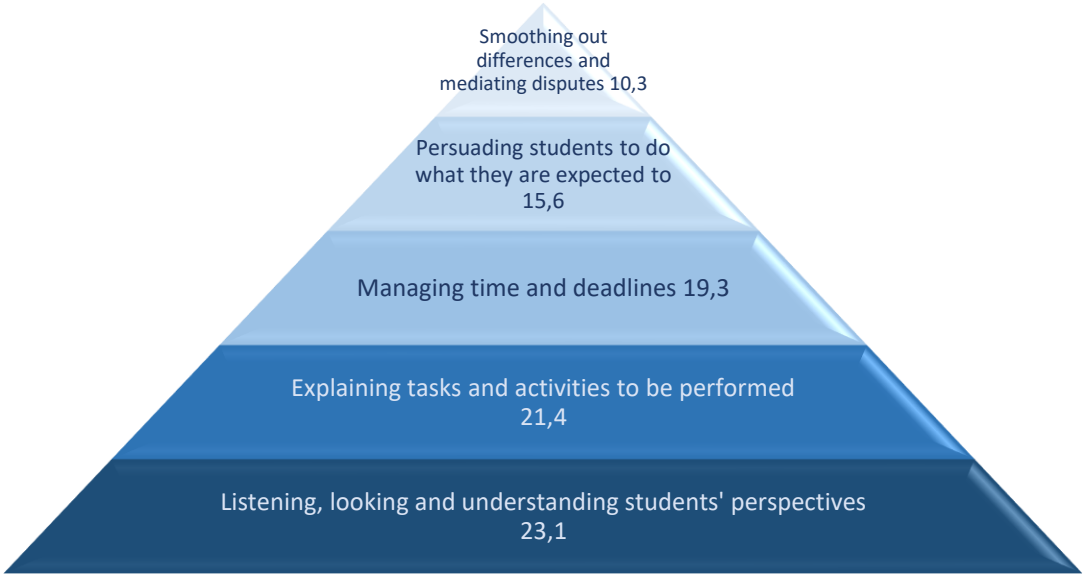


Fig. 3. Top scores (5/5) shared for each ITA L2 teaching skill related to the Akelius e-learning app use

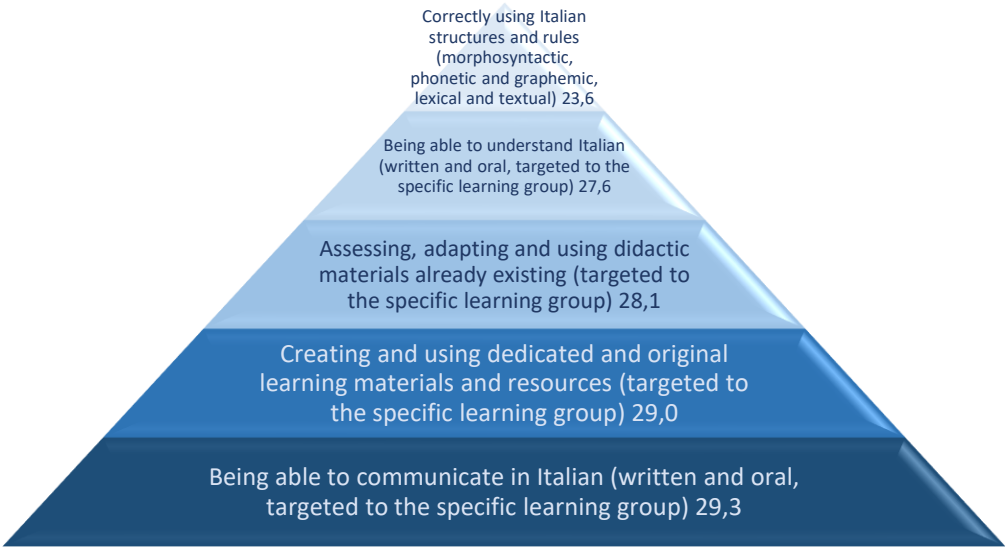
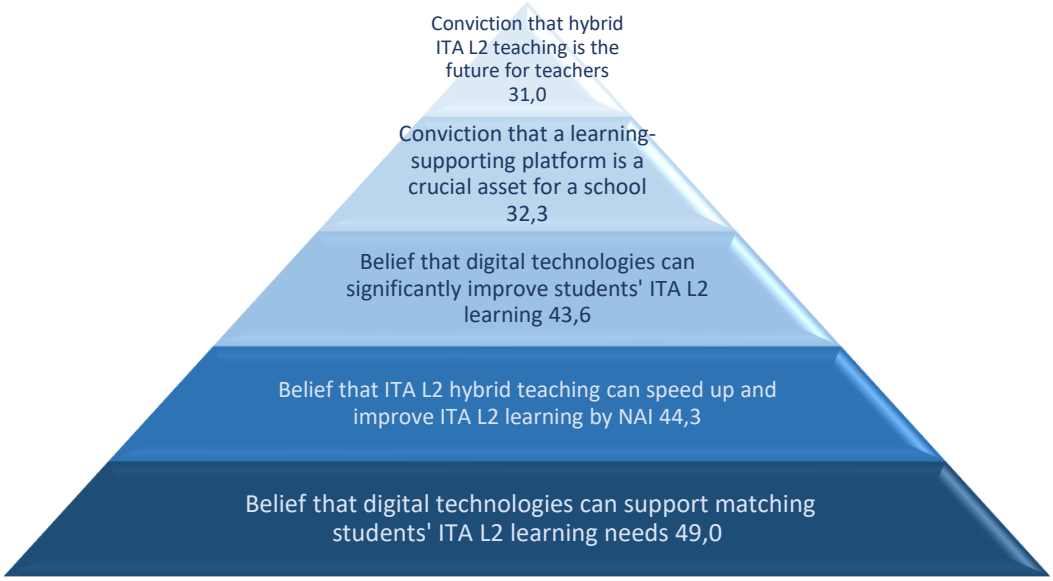


Fig. 4. Top scores (5/5) shared for each motivation and engagement skill related to the Akelius e-learning app use



Another essential requirement mentioned in the interviews is teachers' motivation and engagement in using Akelius e-learning app. Below are presented the answers teachers gave to this question in the survey. The dimensions of motivation and engagement emerging as the most relevant (4-5 scores) are the **Belief that digital technologies can support matching students' ITA L2 learning needs** and the **Belief that ITA L2 hybrid teaching can speed up and improve ITA L2 learning by NAI**. In general, all the items proposed for motivation and engagement receive high relevance scores and – again – this is consistent with school directors'/teachers'-referent positions on this issue.

Tab. 3. How relevant were your **motivation** and **engagement** (for using AP in ITA L2 hybrid teaching as well) (C9, N=245-250, row %)?

	1/not relevant	2	3	4	5/absolutely relevant
Belief that digital technologies can significantly improve students' ITA L2 learning	1.2	2.4	20.0	32.8	43.6

Belief that digital technologies can support matching students' ITA L2 learning needs	0.8	1.6	16.4	**32.0**	**49.0**
Belief that ITA L2 hybrid teaching can speed up and improve ITA L2 learning by NAI	0.8	1.2	17.1	**36.6**	**44.3**
Conviction that a learning-supporting platform is a crucial asset for a school	1.2	4.0	23.4	39.1	32.3
Conviction that hybrid ITA L2 teaching is the future for teachers	1.2	5.3	25.7	36.7	31.0

In conclusion, for the professional dimension of sustainability, the essential requirement for the use of the Akelius e-learning app to be feasible/practicable, net of the supports guaranteed by the project, consists in teachers:

- specifically (even if not necessarily *formally*) trained in Italian L2 teaching *and*
- motivated to use digital technologies in a blended learning environment.

To both new and scale-up schools, these requirements appear necessary for using Akelius e-learning app contents at their best. They seem more crucial than digital skills because the platform's simplicity and intuitiveness ask for these skills to be performed at a basic level, which means they appear less relevant. For Akelius, the app uses sustainability rather than ITA L2 skills. The same may be concluded for relational skills, which emerge – according to teachers' survey – relevant (not surprisingly) but less *essential* than ITA L2 and digital skills.

UNICEF-Akelius Initiative's Guidelines (Section 3.1) are very detailed on "teachers' training and support" assuming that:

- *Teachers have limited digital skills and concepts of blended learning pedagogy.*
- *Teachers lack confidence in using technology in class.*
- *Teachers need clear guidance, pedagogical support, and the opportunity to observe practices and reflect on their own with peers to develop professionally.*

This explains why the "Guidelines provide information on steps, content and delivery related to teacher training on blended learning using Akelius e-learning app, and information on on-going professional development support to provide teachers".

*For our purposes, the **Training success factors** indicated in the Guidelines appear consistent with evidence that emerged on the Professional dimension of sustainability from the Italian Scale-up project. Here below is the extract from the Guidelines, specifically focused on teachers' training: "based on experience from other Akelius participating countries, teacher training events are more successful, and teachers gain more knowledge and skills when:*

- *Teachers will have as much hands-on experience with the tablets during the training as possible to familiarise themselves with both tablets and the Akelius e-learning app.*
- *Teachers **use the Akelius e-learning app** as much as possible during the training.*
- *Training includes **model classes/demonstrations**. This can be done through: (i) the use of videos of teachers using the Akelius e-learning app in their class; (ii) trainers making demonstration classes; (iii) trainees being invited to teach a mock class using the Akelius e-learning app to their peers.*

- *Teachers* **use the e-teacher training modules** *during the training. This can be done individually during or in-between training sessions. Trainers can also use a flipped classroom approach for training participants to teach the e-teacher training content to their peers.*
- *Teachers* **develop concrete outputs** *such as:*
- *mapping the Akelius content onto the curriculum,*
- *generating a list of QR codes for their class,*
- *preparing lesson plans integrating Akelius,*
- *role playing a short lesson using Akelius,*
- *developing rules for using Akelius in their class/school,*
- *developing protocols for the functioning of the language lab/for sharing tablets (between teachers/classes, etc.), for basic troubleshooting, etc.*
- *Training insists on the importance of using the headphones and the log-in function.*
- *Teachers discuss and solve practical blended learning, lesson planning, and pedagogical issues in small groups.*
- *Training contributes to the* **creation of an Akelius community** *for teachers to share practices and resources (e.g. creation of a Google Drive folder where teachers can upload and share lesson plans, teacher support groups, etc.).*
- *Teachers do* **homework in-between training sessions**, *individually or in groups to give them the opportunity to navigate, use and explore the Application.*
- *Training takes place throughout the year so that teachers have opportunities to use the Application, reflect and share with their peers in subsequent training sessions/support meetings".*

4. The financial dimension of sustainability

For the analysis of this dimension, **the Akelius e-learning app is considered as a sunk cost**. This means that the cost of designing and building the platform has already been incurred in the past; it cannot be recovered, and it is irrelevant to any current or future decision-making processes. On the other hand, **the project only concerns promoting and implementing the platform** in Italian schools through the donation of technological devices such as 1,348 tablets and other related accessories and the provision of technical support for using the platform. Hence, the project exclusively focuses on distributing such technological devices and associated tools and facilities for implementing the platform in primary and lower secondary schools.

Tab. 4. General info about the project (for financial sustainability assessment)

GENERAL INFO	Total	School	Out of school
N. of students involved in the project	1036	736	300
N. of educational institutions involved	60	55	5
N. of teachers and mediators	456	442	14
N. of classrooms involved in the project	n/a	n/a	n/a
N. of tablets	1348	1154	194
N. of tablets (distributed)	968	774	194
N. of teachers' tablets (distributed)	200	189	11
N. of students' tablets (distributed)	768	585	183
N. of students involved by school	17,3	13,4	60,0
N. of tablets per teacher	0,4	0,4	0,8
N. of tablets for students	0,7	0,8	0,6
N. of tablets by educational institutions	22,5	21,0	38,8
N. of tablets educational institutions (2022-2023)	16,1	14,1	38,8

A **demand analysis** should determine investment needs by assessing current and projected future demand, often relying on dependable forecasting models.

Background and definitions

The primary purpose of the financial analysis is to assess whether the project is sustainable and viable from a financial point of view. The analysis involves comparing the project's inward and outward cash flows and evaluating the movement of money into and out of the project over a specific period to ascertain its profitability, sustainability, assess risks, and make informed investment decisions.

In the financial analysis, all cash flows are discounted with the **Discounted Cash Flow method**[18] to evaluate the time value of money by discounting future cash flows back to their present value by using

18 https://corporatefinanceinstitute.com/resources/valuation/dcf-formula-guide/

a reference **Financial Discount Rate (FDR)**. The FDR represents the opportunity cost of the capital and is calculated by looking at possible returns of alternative financial investments. The average financial rate of a mix of securities, suggested by EC (2014) is 4% in real terms. With the Discounted Cash Flow method, cash flows are expressed in real terms and net of VAT[19]. Only cash inflows and outflows are considered in the analysis, while depreciation, reserves, price and technical contingencies and other accounting items which do not correspond to actual flows are disregarded. (EC, 2014). All prices are in EUR.[20]

The **time horizon** used to discount the cash flows of this project is set at **ten years.** In general, there is no fixed duration for a digital application or an online learning platform such as Akelius but rather a set of factors that determine how long it will remain relevant and in use. Some applications may last only a few years, while others can remain in use for many years or even decades, depending on how they were designed and managed. Hence, here **we assume that the Akelius e-learning app will be constantly updated and improved over time**, as we anticipate its presence in the market for at least another ten years. Thus, we take this time frame as the horizon of the analysis.

The financial analysis should compare a scenario with the project with a **counterfactual baseline scenario** without the project. This baseline scenario reflects what would occur in the absence of the project. However, the Akelius e-learning app consists of a new service aimed at improving an existing traditional language course service, and the counterfactual scenario is Business as Usual. Without the project, language courses would follow traditional methods, and tablets or other technological devices would not be distributed.

Tab. 5. General info about the financial analysis

Base year	2022
Appraisal start period	2022
Appraisal end period	2033
Time horizon length (years)	10
Start of operations	2022
Financial discount rate (real terms)	4%
Counterfactual Scenario	Business as Usual

The cash flows considered in this financial analysis consist of the following main items:

Outward cash flows[21]

- **Investing costs** account for cash flows related to asset investments in IT (information technology), like buying equipment such as tablets, headsets etc. A total of €308,808 has been invested in purchasing 1,348 tablets, headsets and other accessories (such as tablet covers, screen protectors

19 The financial analysis should usually be carried out in constant (real) prices, i.e. with prices fixed at a base-year. The analysis should be carried out net of VAT, both on purchase (cost) and sales (revenues), if this is recoverable by the project promoter. On the contrary, when VAT is not recoverable, it must be included.

20 When prices are provide in USD an exchange rate of 0,9128 is adopted (Average Exchange rate from 21 November 2022 to 21 November 2023) https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/eurofxref-graph-usd.it.html

21 Financial cash flows, meaning cash flows related to raising and repaying capital, such as loans, equity investments, and dividend payments are not pertinent to this project and therefore excluded from the analysis.

and MDM licenses) in the s.y.2022-2023, with 380 slated for distribution in 2023-2024. After five years from the beginning of the project (2027-2028), we anticipate replacing all tablets and accessories due to obsolescence. As schools will procure their tablets independently, distribution costs are already embedded in the tablet's total cost, thus eradicating any ongoing expenses linked to distribution. The MDM license will also not be replaced after five years. The total undiscounted investment costs over the entire time horizon are €604.234.

Several labour costs have been incurred to initiate the project and are exclusively associated with the initial investment and scale-up phase from 2022-2023 to 2024-2025. They encompass expenses for technical personnel responsible for setting up the tablets, the initial training provided to teachers to familiarize them with the platform's functionality, and the salaries of the 'out-of-school' teachers who have been recruited. A HD service also supports schools during the project's initial phase.

Additionally, UNICEF has appointed a project manager responsible for overseeing and coordinating the various phases of the project. At ISMU, project management expenses cover a project manager's role, administrative expenses, communication costs. Furthermore, a team of professionals is dedicated to monitoring and evaluating the project's outcomes and sustainability. All these labour costs are considered by the project managers' investment costs as they are directly and exclusively linked to the project's initiation. The undiscounted total is €516,269. It is important to note that these expenses will not recur beyond the end of the scale-up phases scheduled for 2024-2025.

Tab. 6. Investment cost in IT items (EUR)

			2022 2023	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034
Item cost	**TOTAL undiscounted**	**TOTAL discounted**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Tablets	531.314	480.347	206.787	58.870				265.657						
Memory card (teacher's tablets)	3.960	3.664	1.980					1.980						
Headsets	28.321	25.622	11.500	2.660				14.160						
MDM License	3.651	3.511	3.651											
Tablet Covers & Screen Protectors	27.257	25.108	10.588	3.040				13.628						
Distribution Costs	9.731	9.255	6.988	2.743										
	-	-						0						
Total eligible investment costs	**604.234**	**527.920**	**241.495**	**67.313**	**0**	**0**	**0**	**295.426**	**0**	**0**	**0**	**0**	**0**	**0**
Total investment costs	**604.234**	**527.920**	**241.495**	**67.313**	**0**	**0**	**0**	**295.426**	**0**	**0**	**0**	**0**	**0**	**0**

Tab. 7. Cost of labour (investment phase – EUR)

			2022 2023	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034
	Not discounted	Discounted	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total labour costs (Investment)	**516.269**	**478.928**	**190.187**	**173.531**	**152.551**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Technical personnel paid to set up the IT	12.564	11.888	7.364	5.200										
Training of teachers and mediators	79.908	73.536	19.584	30.285	30.038									
Payment of teachers “out of school”	15.114	14.532	15.114											
Helpdesk service	57.854	53.500	19.091	19.205	19.558									
Project manager (UNICEF)	71.900	67.419	35.800	25.400	10.700									
Project management, administrative and communication (ISMU)	111.715	103.194	35.400	36.902	39.413									
Evidence generation experts	97.954	90.646	34.091	30.723	33.140									
Technical support	15.060	13.900	4.545	5.096	5.419									
Test of evaluation	16.096	15.142	7.045	9.051										
Evaluation experts	30.906	28.414	7.955	10.169	12.783									
Travel costs	7.198	6.757	4.198	1.500	1.500									

- **Operating costs,** typically encompass the cash flows associated with a project's fundamental operations, covering various expenses and transactions directly tied to its primary activities. In this particular project, there are no identified operating costs. Interviews conducted with school personnel and Akelius project managers suggest that once the scale-up process concludes, there will be no requirement for additional personnel to facilitate the platform's usage. There will be no need for HD or extra technical personnel. Teachers will seamlessly conduct their language courses using tablets. Without the project, they would continue teaching in the traditional manner, thus incurring no additional expenses compared to the usual scenario. Moreover, possible additional costs for electricity and internet usage would have been accrued by the schools regardless of tablet usage, hence they are considered negligible in this context.

Inward cash flows

The project does not produce inbound cash flows due to its lack of revenue generation. The Akelius e-learning app is free, with no fees required from the school.

Source of financing

The funding source serves as the essential provider of financial resources required for the project, fulfilling various operational requirements such as short-term working capital, acquiring fixed assets, and making long-term investments. Notably, all contributions are in the form of donations and do not entail interest payments.

UNICEF stands as the primary contributor to the project, directly allocating funds for the scale-up phase. UNICEF has secured financial support from the Akelius Foundation and has also allocated its own resources to further this initiative. In addition to UNICEF's direct contribution, donations from private sector organizations are also channelled through UNICEF. Simultaneously, the ISMU Foundation and UNICEF's other partner secured funding from UNICEF to execute the platform implementation.

Tab. 8. Source of financing (EUR)

			2022-2023	2023-2024	2024-2025
	Not discounted	Discounted	2022	2023	2024
UNICEF contribution	176.781	168.266	140.681	25.400	10.700
UNICEF contribution (via other partner)	70.057	67.170	64.857	5.200	
UNICEF contribution (from the donor)	129.627	124.641	129.627		
UNICEF contribution (via ISMU)	451.069	417.951	161.087	148.131	141.851
Total sources of financing	**827.533**	**778.029**	**496.251**	**178.731**	**152.551**

Main indicators of financial performance

To conduct a thorough financial analysis, it is essential to calculate key indicators such as financial profitability and sustainability.

Financial Profitability: The Financial Net Present Value **(FNPV-C)** on investment is defined as the sum of discounted investment and operating costs less expected revenues. It assesses whether the project is financially attractive. Since the Akelius e-learning app does not generate revenues, the FNPV-C is negative, hence, the project needs financial support, and it is not profitable from a financial point of view. From a financial point of view, the project generates a financial loss of €958.220,87.

Nevertheless, several projects exhibiting a negative FNPV-C might yield positive societal value, necessitating an economic analysis to complement the financial evaluation. The economic analysis is out of the scope of this evaluation.

Financial Sustainability: The financial sustainability of the project is achieved when there is no anticipated risk of running out of cash in the future during both the investment and operational phases. In the scale-up phase, UNICEF can demonstrate that the available financing sources align with the project's annual disbursements until the end of the scale-up. The project is financially sustainable as cash flow is positive for all the years considered until the end of the scale-up (2024-2025). The inflows here exclusively include the sources of financing[22]. The residual value is not taken into account. Indeed, if the tablets and other IT assets were liquidated when their life was exhausted, their residual value would be zero. The dynamics of the inflows are measured against the outflows that include i) initial investment (IT items plus labour costs) ii) replacement costs iii) operating costs that are equal to zero. The difference between inflows and outflows shows the deficit or surplus that will be accumulated each year. The cumulated cash flow is +€64.570 in the first year and +€2.457 during the second and the third year of the project.

When the scale-up phase will be over, and all tablets and other accessories will be replaced by the schools themselves in 2027-2028 s.y., each average education institute shall contribute €4.924 or, more precisely €219 for each tablet received or €285 for each student involved. Table below report the contribution by a single educational institute with the distinction between schools and out-of-school institutes. It is important to remark that for schools, the investment is limited to tablet replacements alone, while the scale-up phase of the project incurred additional costs for the initial penetration of the platform and its implementation in schools, such as initial training of teachers, technical and helpdesk support, project evaluation, and other associated expenses that will not anymore incur in the future.

Furthermore, the lower contribution by students to "out-of-school" institutions is notably influenced by their larger student population involvement (an average of 60 students per "out-of-school" institution compared to an average of 14 students for schools). This variation is exclusively attributable to the events of the summer of 2022, characterized by the significant arrival of Ukrainian children in Italy, who were intercepted by Ukrainian associations.

Tab. 9. Contribution required from 2027-2028 to make the project sustainable at the educational institute level (EUR)

	TOTAL	SCHOOL	OUT OF SCHOOL
Contribution by a single educational institute	4.924	4.577	8.741
Contribution by tablets received	219,16	218,13	225,29
Contribution by students involved	285,16	342,01	145,69

[22] Operating revenues are not present in this project.

Tab. 10. Sustainability plan

			2022 2023	2023 2024	2024 2025	2025 2026	2026 2027	2027 2028	2028 2029	2029 2030	2030 2031	2031 2032	2032 2033	2033 2034
	Not discounted	Discounted	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total inflows	**1.122.959**	**1.011.508**	**496.251**	**178.731**	**152.551**	**0**	**0**	**295.426**	**0**	**0**	**0**	**0**	**0**	**0**
UNICEF contribution	176.781	168.266	140.681	25.400	10.700	0	0	0	0	0	0	0	0	0
UNICEF contribution (via other partner)	70.057	67.170	64.857	5.200	0	0	0	0	0	0	0	0	0	0
UNICEF contribution (from the donor)	129.627	124.641	129.627	0	0	0	0	0	0	0	0	0	0	0
UNICEF contribution (via ISMU)	451.069	417.951	161.087	148.131	141.851	0	0	0	0	0	0	0	0	0
Educational Inst Contribution (Total)								295.426						
Total outflows	**1.120.502**	**1.006.849**	**431.682**	**240.843**	**152.551**	**0**	**0**	**295.426**	**0**	**0**	**0**	**0**	**0**	**0**
Total investment costs (TOTAL)	604.234	527.920	241.495	67.313	0	0	0	295.426	0	0	0	0	0	0
Total labour investment costs (TOTAL)	516.269	478.928	190.187	173.531	152.551	0	0	0	0	0	0	0	0	0
Total outflows (schools)	**978.782**	**878.063**	**333.668**	**240.843**	**152.551**	**0**	**0**	**251.719**	**0**	**0**	**0**	**0**	**0**	**0**
Total investment costs (schools)	515.420	450.006	196.388	67.313	0	0	0	251.719	0	0	0	0	0	0
Total labour investment costs (schools)	463.362	428.057	137.280	173.531	152.551	0	0	0	0	0	0	0	0	0
Total outflows (out of schools)	**141.720**	**128.785**	**98.013**	**0**	**0**	**0**	**0**	**43.707**	**0**	**0**	**0**	**0**	**0**	**0**
Total investment costs (out of schools)	88.813	77.914	45.107	0	0	0	0	43.707	0	0	0	0	0	0
Total labour investment costs (out of schools)	52.906	50.871	52.906	0	0	0	0	0	0	0	0	0	0	0
Total operating costs	0	0												
Net cash flow	**2.457**	**4.659**	**64.570**	**-62.113**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cumulated net cash flow			**64.570**	**2.457**	**2.457**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Main results

The financial analysis aims to evaluate the project's sustainability and viability by comparing its cash flows with a focus on inward and outward movements of money. It uses the Discounted Cash Flow method with a 4% Financial Discount Rate and spans a ten-year horizon, anticipating the Akelius e-learning app's presence in the market. Comparatively, the counterfactual scenario depicts the absence of the project, where traditional language courses persist without the use of the platform and devices distribution.

The financial analysis outlines cash flows comprising outward expenses: initial investments of €308,808 for IT assets like tablets, headsets, and accessories, labour costs totalling €516,269 for project initiation and scale-up, and no operating expenses. Inward cash flows are absent due to the project's lack of revenue generation. The project's funding primarily stems from donations, with UNICEF as the primary contributor, securing support from the Akelius Foundation, UNICEF's other partner, the donor, and the ISMU Foundation for project implementation.

The project's Financial Net Present Value (FNPV-C) is negative due to the absence of revenue generation, indicating a financial loss of €958,220.87. While financially unprofitable, it's acknowledged that projects with negative FNPV-C might still hold societal value, necessitating an economic analysis beyond financial perspectives.

The project demonstrates financial sustainability, ensuring no future risk of cash depletion during investment and operational phases. Positive cash flow projections align with available financing until the scale-up's end in 2024-2025. This evaluation considers inflows against outflows, including initial and replacement costs, with cumulative cash flow being +€64,570 in the first year and +€2,457 in subsequent years.

Post-scale-up, educational institutes are expected to contribute €4,924 each for tablet replacements and related accessories, varying between schools and out-of-school institutes based on differing student populations attributed to events in 2022 involving Ukrainian children in Italy.

Main conclusions and evidence

The table presenting the **essential requirements** for the Akelius e-learning app use sustainability by Comprehensive Institutes *without* scale-up project support has been presented and commented on in the *Executive Summary* (see above). Here, some narrative conclusions will be proposed and briefly discussed.

Starting from the **technological** dimension of sustainability, the availability of a well-operating internet connection and of a number of devices (tables) corresponding to – or, at least, consistent with – the number of students involved in the Akelius e-learning app use are the two essential requirements indicated by all the interviewed school directors/teachers-referent for schools using Akelius e-learning app for the first time (and without project's support). The third (in order of importance) refers to the **professional dimension** since it concerns teachers' skills and their motivation (in using Akelius e-learning app) on the other. However, there is no full agreement among the interviewees about the *nature* of the *essential* skills: in fact, for some interviewees, the focus should be on (teachers') digital skills, while for other interviewees, core skills are related to ITA L2 teaching in itself. Regardless, between the two, digital skills strictly related to Akelius e-learning app use are considered a more essential requirement than ITA L2 skills (probably because – see below the other sections of the *Report* – ITA L2 teaching skills are deemed present and consolidated also *prior* to Akelius project).

These three requirements (with a priority for the first two) are also crucial for the sustainability of the Akelius e-learning app use by schools involved in the scale-up (assuming they will not benefit anymore of the project's support in case of continuation). The requirements may be cross-checked with those emerging from the ISMU Schools survey. Here below are reported the answers to the question "After the end of the project, to continue using Akelius e-learning app (without project's support) it should be necessary to" (more than one answer was possible), answers which in general confirm the key-role of the three requirements.

Tab. 11. Conditions for continuing using Akelius e-learning app after the scale-up project conclusion (schools involved in scale-up, N=50)

		VP.
Purchase new digital devices and related supports tools/gadgets (e.g. tablets, headphones, covers, ...)	**20**	**40%**
Improve internet connection	7	14%
Increase the number of electrical plugs	5	10%
Arrange places/spaces for storing digital devices	12	24%
Hire staff specialized on in IT and technical support for digital devices	6	12%
Deliver training courses for teachers on Akelius e-learning app use	**32**	**64%**
Supply teachers with practical didactic materials on using Akelius e-learning app/course	**34**	**68%**
Other	2	4%
Nothing, optimal conditions already exist	6	12%

Teachers-centred *conditions* (training courses and didactic materials for using Akelius e-learning app) are largely the most mentioned (with, respectively, 64% and 68% of the answers), while technologies, although relevant, obtain the 40% of answers followed by conditions related to physical equipment and assets. Their answers show that scale-up participation positively influenced the adequacy of physical/technical requirements. However, to continue without the project's support, an additional investment on teachers' skills in using the Akelius e-learning app at its best would be more crucial than purchasing new devices (tablets). This evidence allows teachers' skills (in using Akelius e-learning app) to be key (also considering interviews' indications) in sustainability conditions.

Again, for schools involved in the scale-up, in the majority of cases, school directors /teachers-referent report that the use of the Akelius e-learning app would be feasible by their own school, after the 2022/23 participation in the scale-up, even without the support provided by the project.

The main motivations for this position are the following two:

- the simplicity/intuitiveness of the platform (how to use it, how to move through it);
- the participation of teachers in ISMU training in using the Akelius e-learning app during the scale-up project.

Should new (that is *not-trained*) teachers use Akelius e-learning app in the scale-up schools (in 2023/24 and in the following years, therefore not benefitting ISMU training), several interviewees suggest the possibility of implementing *peer-to-peer* training by teachers involved in the scale-up.

Only in two cases (out of 11) is the use of Akelius e-learning app deemed *hardly feasible and/or difficult* in the absence of the support received by the scale-up project. In particular, for these two interviewees, it is necessary- for the correct and fruitful use of the platform- not only attending ISMU dedicated training but also the support of the HD (delivered by ISMU as well in the scale-up).

These evidence on Akelius e-learning app (use) sustainability (for the schools involved in the scale-up) are placed in a framework in which (source: ISMU Schools survey, various questions):

- 33 schools (out of 50, corresponding to 66%) consider *relevant/very relevant*[23] the use of Akelius e-learning app in the scale-up project;
- 44 schools (88% of total answering) manifested the intention to continue using Akelius e-learning app after scale-up project conclusion;
- 31 schools (out of the 44 which were to continue using the Akelius e-learning app in s.y. 2023/24) intended to support platform use through "internal paid teachers without a specialization in ITA L2" (74%), while 23 schools[24] will rely on "internal paid teachers with a specialization in ITA L2". In general, the use of internal teachers is absolutely prevailing;

Back to schools not involved in scale-up, and therefore schools that are supposed to use the Akelius e-learning app without any support,

- Teachers' training on platform use
- Tablets availability for all the involved students
- A well-working internet connection

are considered essential requirements whose absence will not allow Akelius e-learning app use.

This is the opinion of most of the school directors /teachers-referent. As already mentioned, in fact, the use of the platform is considered *easy and intuitive,* but the absence of dedicated training (on platform use, not on teaching ITA L2) could cause difficulties and problems in its optimal use (or, at

[23] Rating 4 (19 schools) or 5 (14 schools) on a 1-5 scale answer (another 32% indicated a score equivalent to 3).
[24] Multiple answers were possible.

least, a sort of *under-utilization*). On a different position are school directors /teachers-referent who affirm that, for a school not involved in 2022/23 scale-up, teachers would need only basic digital skills to use the platform. However, those having this position underline the importance for teachers involved to have at least basic skills in ITA L2 teaching, a requirement which would make platform use more effective.

Finally, financial sustainability – which was assessed using a specific methodology[25]- is confirmed at the project level, showing positive cash flow until the scale-up's end in 2024/25, aligning available financing with annual disbursements. The project demonstrates financial sustainability, ensuring no future risk of cash depletion during investment and operational phases. This evaluation considers inflows against outflows, including initial and replacement costs, with cumulative cash flow being +€64,570 in the first year and +€2,457 in subsequent years. In post-scale-up, each educational institution is expected to contribute €4,924 for tablet replacements only, with distinctions between schools and "out-of-school" institutes influenced by differing Ukrainian student populations in 2022.

[25] See above the dedicated section in this report.

Annexes

Annex 1: School directors/teachers-referent semi-structured interview track (1 hour max, at-distance)

Denominazione dell'istituto scolastico:

Nominativi e posizione degli intervistati/e:

Data dell'intervista:

In generale

1. Alla luce della esperienza realizzata nell'ambito del Progetto Akelius (utilizzo della piattaforma ai fini di una didattica ibrida per l'insegnamento dell'italiano L2), quanto sarebbe sostenibile (praticabile, fattibile) nel vostro istituto il suo utilizzo il prossimo anno scolastico **senza** il supporto avuto dal progetto? Quale è la principale motivazione della risposta (sia affermativa sia negativa)?
2. Sempre alla luce della vostra esperienza dello scorso anno scolastico, quanto sarebbe praticabile l'utilizzo della piattaforma Akelius da parte di un istituto scolastico **non** incluso nel progetto di quest'anno e che quindi **non** ha beneficiato del supporto che avete avuto voi? Quale è la principale motivazione della risposta (sia positiva che negativa)?

Dimensione tecnologica

1. Quale è, rispetto alla dimensione tecnologica del progetto, il **requisito imprescindibile** per l'utilizzo della piattaforma Akelius da parte di un istituto come il vostro **senza** il supporto del progetto stesso?
2. Questo requisito è presente nel suo/vostro istituto (senza il progetto Akelius, qualora il suo/vostro istituto intenda proseguire l'utilizzo della piattaforma nell'a.s. 23/24) oppure no?
3. Nel caso non sia presente, è possibile renderlo presente? Come? In che modo (escludendo, ovviamente, il contributo del progetto Akelius)?

Dimensione organizzativa

1. Quale è, rispetto alla dimensione organizzativa del progetto, il **requisito imprescindibile** per l'utilizzo della piattaforma Akelius da parte di un istituto come il vostro **senza** il supporto del progetto?
2. Questo requisito è presente nel suo/vostro istituto (senza il progetto Akelius, qualora il suo/vostro istituto intenda proseguire l'utilizzo della piattaforma nell'a.s. 23/24) oppure no?
3. Nel caso non sia presente, è possibile renderlo presente? Come? In che modo (escludendo, ovviamente, il contributo del progetto Akelius)?

Dimensione professionale

1. Quale è, rispetto al profilo dei/delle docenti (da coinvolgere), il **requisito imprescindibile** per l'utilizzo della piattaforma Akelius da parte di un istituto come il vostro **senza** il supporto del progetto?
2. Questo requisito è presente nel suo/vostro istituto (senza il progetto Akelius, qualora il suo/vostro istituto intenda proseguire l'utilizzo della piattaforma nell'a.s. 23/24) oppure no?
3. Nel caso non sia presente, è possibile renderlo presente? Come? In che modo (escludendo, ovviamente, il contributo del progetto Akelius)?

Dimensione economica

1. Quali costi ha sostenuto Il vostro istituto per l'implementazione della piattaforma?

2. Sono stati necessari adattamenti nelle classi per l'implementazione della piattaforma?
3. Avete impegnato personale tecnico e/o amministrativo per l'implementazione della piattaforma? Se si potrebbe dare maggiori dettagli?
4. Avete impiegato personale docente nelle ore extra-scolastiche o altro personale docente esterno?
5. Ritiene che i costi per l'implementazione della piattaforma nel vostro istituto siano ragionevoli?
6. Escludendo il contributo del progetto Akelius, riterrebbe utile investire nell'implementazione della piattaforma nel vostro istituto? Perché?
7. Se non usate la piattaforma Akelius, quali costi in genere sostenete per l'insegnamento della lingua straniera con metodi tradizionali? (e.g. insegnanti, aule, manuali, pc, etc.)
8. Nel vostro istituto quante aule sono state adibite per l'utilizzo della piattaforma Akelius?
9. Quanti studenti hanno lavorato sulla piattaforma per ciascuna aula adibita ad hoc?
10. Nel vostro istituto la piattaforma viene utilizzata per l'insegnamento della seconda lingua oppure per il solo insegnamento agli studenti stranieri?
11. Se i tablet non rimangono in aula dove vengono conservati?
12. Dopo quanto viene sostituito in media un tablet nel vostro istituto?

Per concludere

1. Quali sono in conclusione le **tre condizioni imprescindibili** affinché un istituto **che ha partecipato** al progetto Akelius 22/23 possa proseguire con l'utilizzo della piattaforma, nell'a.s. 23/24, **senza** il supporto del progetto stesso? Sono le 3 che ha indicato prima, separatamente, per le diverse dimensioni esplorate (tecnologica, organizzativa, professionale)?

2. Sono le medesime anche per un istituto che **non ha partecipato** al progetto quest'anno (e che quindi "parte da zero") oppure in questo caso ve ne sono altre? Se sì, quali?

(Fine)

Annex 2: Answers to Teachers surveys questions related to sustainability (ref. to Figg. 1, 2, 3, 4)

In your experience, how relevant were the following **digital skills** for using AP in ITA L2 teaching in hybrid (blended) mode (C7 question, N=238-257 depending on the item, row %)?

	1/not relevant	2	3	4	5/ Absolutely relevant
Using platforms like Zoom, Teams and similar (basic level)	12.4	17.8	**32.6**	**23.1**	14.0
Using teaching-supporting devices like tablets, computers, smart-boards, …) (basic level)	1.6	3.1	16.1	**37.4**	**41.7**
Creating engaging visuals	11.8	16.9	**32.9**	**24.5**	13.9
Using and creating video contents	13.0	17.6	**31.4**	**25.5**	12.6
Using and creating digital audio contents	13.0	17.6	**33.6**	**25.2**	10.1
Embracing game-based learning	2.0	1.6	20.9	**38.6**	**36.9**

In your experience, for using AP in ITA L2 teaching in hybrid (blended) mode, how relevant have been the **relational skills** here below indicated (C8 question, N=242-252, row %)?

	1/not relevant	2	3	4	5/absolutely relevant

Smoothing out differences and mediating disputes	16.5	19.0	**34.3**	**19.8**	10.3
Explaining tasks and activities to be performed	6.7	8.3	**30.2**	**33.3**	21.4
Listening, looking and understanding students' perspectives	6.5	7.7	**31.2**	**31.6**	23.1
Persuading students to do what they are expected to	10.7	11.5	**32.8**	**29.5**	15.6
Managing time and deadlines	8.8	9.6	**31.7**	**30.5**	19.3

In your experience, for using AP in ITA L2 teaching in hybrid mode, how relevant have been the following **ITA L2 teaching competences** C10 (N=246-249, row %)?

	1/not relevant	2	3	4	5/absolutely relevant
Being able to communicate in Italian (written and oral, targeted to the specific learning group)	2.4	4.8	28.9	**34.5**	**29.3**
Being able to understand Italian (written and oral, targeted to the specific learning group)	0.8	2.8	**31.7**	**37.0**	27.6
Correctly using Italian structures and rules (morphosyntactic, phonetic and graphemic, lexical and textual)	2.4	5.3	**37.8**	**30.9**	23.6
Assessing, adapting and using didactic materials already existing (targeted to the specific learning group)	2.4	3.2	**29.7**	**36.5**	28.1
Creating and using dedicated and original learning materials and resources (targeted to the specific learning group)	1.6	4.4	**30.6**	**34.3**	29.0

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