COMMUNICATION TOOLS ON E-LEARNING PORTALS

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Abstract: The value of classes held through distance learning portals is not only determined by the quality of the learning resources that are produced, but also by the efficiency of the specific forms of communication, user interactions, and the diversity of students' and teachers' activities. Without carefully planned and properly used forms of communication, difficulties may emerge in the distance learning process. Participants of e-learning courses, particularly teachers, should become acquainted with the tools available in the given learning portal so as to be able to implement them successfully in the exchange of information, integration and motivation of the learners' community.

The purpose of this article is to characterize certain selected, most commonly used synchronous and asynchronous communication tools available on e-learning portals and to identify the methods of employing them in a distance learning course. The authors, who have practical experience in distance learning in an academic context, aimed at directing the readers' attention to the frequently underestimated aspect of selecting the communication tools and methods for e-learning courses.

Keywords: communication tools, e-learning portal, videoconference, chat, forum, Wiki, e-mail, calendar, academic education, distance education

1. COMMUNICATION IN COURSES

Communication in e-learning courses has slightly different characteristics than communication during conventional classes. It is usually more personalized. The teacher has fewer opportunities to communicate with the whole group but at the

same time they can spend more time talking to individual class participants. In this mode of teaching, the teacher can allow the learning process to extend to social interactions among the students themselves (see Figure 1). This purpose can be served by discussions within a course, where communication tools available in the portal can be employed.
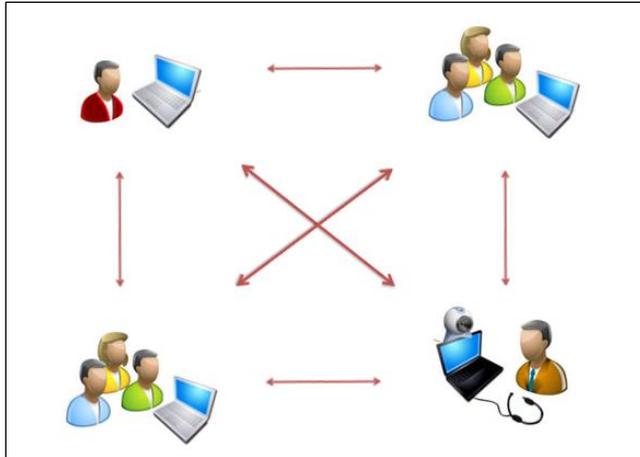

Figure 1. Communication in online course

Source: own elaboration

Discussion topics should be planned before the class starts. The number of topics per module (class subject) should not exceed a reasonable amount, as it should be borne in mind that discussions should be mandatory for online courses, unless they are held as consultations.

Discussion is among the essential methods to promote the pro-active attitude, and it is the primary method for distance learning. Its importance mainly relies on the fact that it offers an opportunity to build and develop skills in the following areas:

- critical thinking and analysis of information received,
- practical implementation of the theoretical background,
- stating problems and hypotheses,
- structuring knowledge, generalizing and synthesizing,
- justifying and assessing claims,
- arguing, active reading, verifying the views of others.

The purpose of a discussion should always be to reconcile conflicting opinions or to resolve a well-defined problem. Therefore, every discussion should be prepared in advance and then moderated by the teacher. The extent of moderation depends on:

- the anticipated goals of the discussion,

- the topical area of the discussion,

- the function of discussion within the course,

- the anticipated discussion dynamics and activity levels,

- the manners of the participants,

- the teacher's work style.

Duties of the teacher-moderator include:

1. initiating discussion — namely, presenting the problem to be resolved, encouraging students to take part in the discussion;

2. organization and participation in the discussion — according to the expected goal of the discussion and the teacher's work style:

   - responding to anything a student says,

   - responding to some interesting things that were said, i.e. taking an active part in the debate and identifying problems for the discussion during the process,

   - targeting the discussion through verifying that it is proceeding properly, or restricting those discussion threads which are outside the current area of interest (including criticism towards speakers who are entirely off-topic, and eliminating aggression among participants),

   - responding only to questions asked directly to the teacher,

   - summing up the discussion;

3. encouraging the sharing of opinions;

4. analysis and summing up the discussions at the end of the module - a short commentary, reporting on the progress of the discussion, justifying the right solution to the problem, identifying follow-up issues, etc., thanking the students for their participation.

However, discussion management in an e-learning course not only involves organization and control of the actual progress of the discussion, but also administration of the communication tool implemented on the portal. The latter activity is usually determined by the technology in place, and should not be a challenge for the teacher.

Therefore, the teacher should be required to be familiar with the communication tools available on the portal because this could affect the quality and advancement of his course. The following communication tools are available:

- asynchronous,

- synchronous.

In asynchronous communication forms, the recipient's responses are offset in time, while synchronous formats enable the discussion participants to communicate in real time. The most commonly used asynchronous communication tools include:

- e-mail,

- forum,

- Wiki,

- calendar.

The following should be mentioned as synchronous communication tools (see Figure 2) in this respect:

- chat,

- video conferencing.
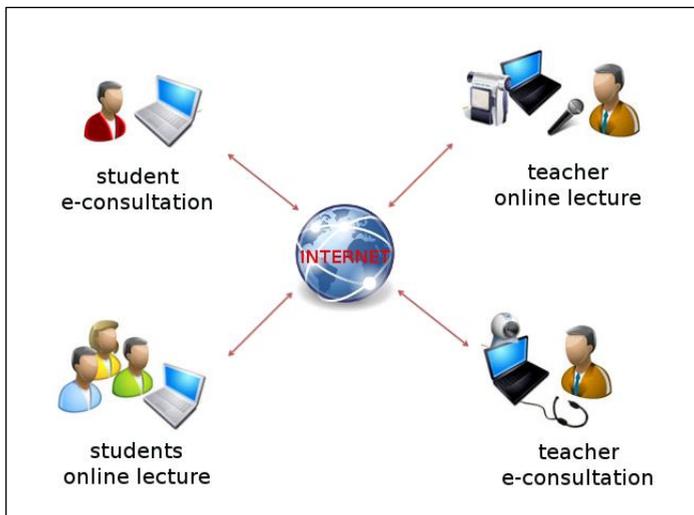
Figure 2. Synchronous communication in online course

Source: own elaboration

The purpose of extensive forms of communication is to establish a group of learners and to enable group members to build their identity through the interaction with others. Therefore, communication is a motivating factor that gives the participants the feeling of actual participation and the need to maintain contact within the group, which ensures higher work efficiency.

2. SYNCHRONOUS COMMUNICATION TOOLS

2.1 Chat

Online chat applications should be mentioned as synchronous communication tools. Chat function offers communication only with simultaneous presence of the teacher and the student on the learning portal. Typically, the date and time of such discussion is pre-arranged and communicated to a certain extent in advance. The function of the chat applications is the exchange of short text messages between the teacher and the student, typed in the message window, visible for other discussion participants immediately after sending. Generally, these are not designed for group communication.

The teacher, acting as the chat discussion moderator, should respond relatively quickly to specific messages and the direction of the conversation, which could be very difficult for larger groups of participants (e.g. 20) due to time limitations. With a continuous influx of questions, waiting time for a reply is extended, and after a certain time the teacher will lose control over the discussion. Therefore, online chat applications are not the right tools for efficient and to-the-point discussions within the framework of group communication. They will only work for communication with a single student, or for brainstorming sessions. Chat function remains useful for groups consisting of a few members only (3 is the preferred number).

Moodle offers chat communication options to users (see Figure 3). In addition, chat can be combined with a virtual board, which is a group work tool. In that case, it works as a kind of online conference, featuring an exchange of text messages and cooperation in creating graphic information. As an option, conversations can be recorded and stored.

On the OLAT (Online Learning And Training) portal, chat is available when Instant Messaging is installed. It allows users to engage in individual communication as well as group discussions in chatrooms. A chatroom can be assigned to the course or a user group. Another very convenient function of the messaging tool is its automatic synchronization with a project group, which is the group appointed to achieve certain course tasks.
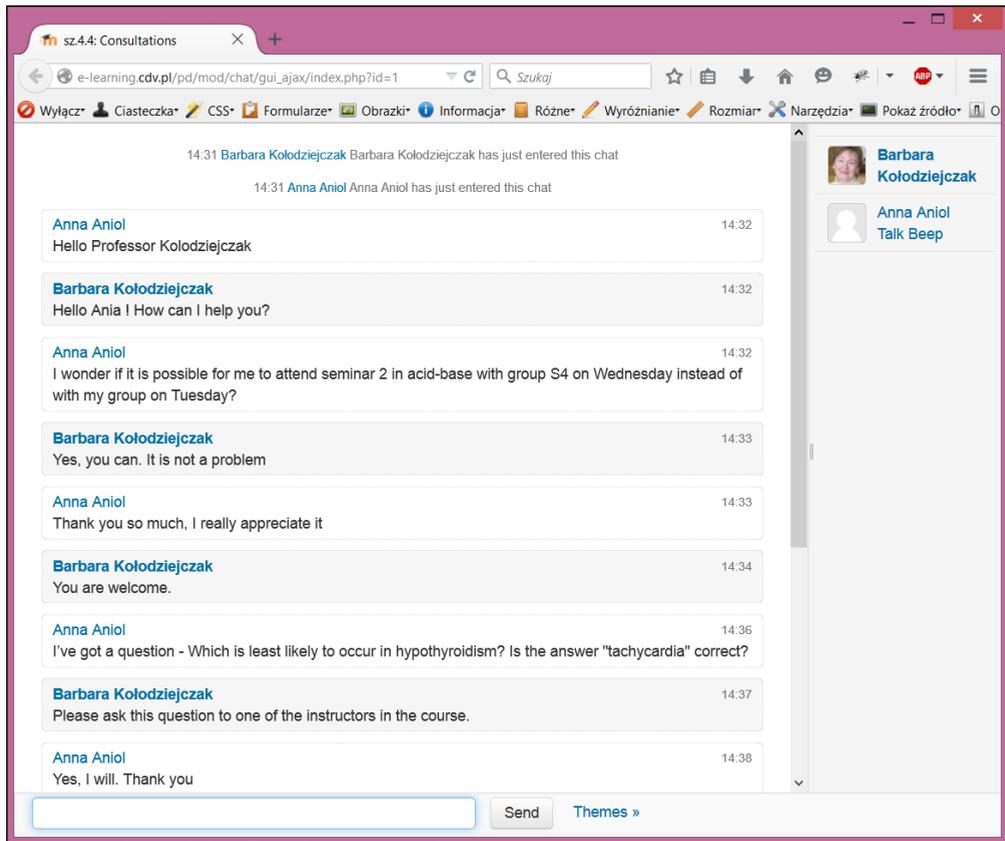
Figure 3. E-consultations in the pathophysiology course

Source: own elaboration

2.2 Video conferencing

Video conferencing systems (video or audio conferencing) are further synchronous communication tools. With this type of tool, a video conference can be held at a specified time for a specific group of users. Students participating in a distance learning group can then listen to their teacher live.

High bitrates are required for video conferencing sessions because moving images contain enormous volumes of information. One second of video image contains the capacity of information equivalent to 5 thousand pages of text. This is a huge volume of information for transmission, even via a digital line, and therefore audio and video data must be compressed before transmission and decompressed after reception.

Video conferencing can be very efficient in the communication and learning process accordingly as (Czekan 2005):

- it is an interactive communication medium;

- it offers real time visual contact between the teacher and students;

- it offers visual communication and interaction to strengthen the communication and help course participants to communicate with each other;

- it offers eye contact and helps to build relationships among course participants, which may be more effective than via e-mail, phone or messaging applications;

- it enables text and video communication transmission to multiple destinations at the same time;

- it facilitates communication with experts located in various areas of the world;

- it enables participants to see various interesting places worldwide in real time.

Video conferences may work in the following communication modes:

- point-to-point – in this communication mode, a course participant will connect to another participant, e.g. a teacher engaging in video conference with one student, then switching to another student. They can all see each other on the screen.

- point-to-multipoint – there are certain video conferencing systems enabling simultaneous bilateral communication of one to many, e.g. one teacher can connect to multiple students at the same time. These video conferences are more efficient, although planning them for a large number of students can be very difficult in organizational, technical or logistic terms. In this video conferencing system, the teacher takes up the managing role, using an MCU (Multipoint Control Unit) to control multipoint communication. These services require at least one MCU, IT personnel to set up the conference links and controls, and high-speed Internet connectivity.

Learning portals are seldom fitted with video conferencing tools. Distance learning participants tend to use third party tools generally available to the public. Skype is one of the most common choices.

Up until recently, not more than ten persons could attend Skype video conferences. Before, the free version of Skype offered video calls on two separate devices only, and any user of Skype who was interested in setting up group video conferences had to buy a subscription for Skype Premium.

Other tools that offer video conferencing organization include:

- Google Hangouts,

- WiZiQ,

- Flashmeeting,
- OpenMeetings,
- BigBlueButton.

There are video conferencing systems that link up to 48 locations together (LifeSize system) over IP (typically over the Internet or Intranet) or via ISDN 128 Kbps. These can be used for audio and video transmission to SD, HD or Full HD standard (1920x1280 resolution). Examples of video conferencing systems include: LifeSize, Cisco, and Microsoft Lync. More information about video conferencing services, video and audio coding standards, multipoint conferencing modes, is available for example at http://zstux.ita.pwr.wroc.pl/projekty/ezenia/itut.html.

3. ASYNCHRONOUS COMMUNICATION TOOLS

3.1 E-mail

Within a learning portal, group members will communicate mainly through asynchronous options. This type of communication proceeds more slowly than the synchronous one, however if it is properly organized, it is the most convenient tool of communication among group participants.

Conventional e-mail plays an important role in asynchronous communication. The integrated e-mail option on an e-learning portal is used for quickly sharing information and communication between users. An e-mail message can only be sent within a specific course. Thus, you cannot send a message to any user(s) of the given learning portal, but only to a user participating in the same course (Roszak, Kołodziejczak, Kowalewski, Ren-Kurc 2013: 340). Functions of the integrated e-mail on the portal are similar to e-mail functions on any other website.

An alternative for the integrated e-mail is to set up a mailing list in an external e-mail application such as Outlook, or to use a networking site that offers a single inbox that shows messages to all group members, such as Facebook, Twitter, or Academio.

The following types of transmissions can be distinguished:

- notifications, i.e. e-mail messages with complete information about the given course, including so-called welcome messages;
- messages encouraging discussion, e.g. a request for an opinion about an issue presented on the forum concerning the given part of module material;
- reminders of upcoming deadlines - these should appear when a deadline is approaching for submission of assignments/tests and only a few papers have been submitted, or when the volume of discussion on the forum is not satisfactory despite the passage of time;

- organizational messages - communications of course changes, e.g. notice of the next set of material being available, or reminder to complete an evaluation survey.

Well planned message structure plays a very important part in group communication via e-mail. Preparation of the right format for outgoing messages strongly facilitates the work of:

- the sender who repeatedly sends similar messages;

- and the recipient who is able to quickly identify and assign a given message to the given assignment or course out of a large volume of incoming messages.

For this goal to be achieved, the message subject must be stated properly, specifying course or assignment numbers concerned. It is recommended to prepare template messages.

Summing up, we should emphasize the advantages of e-mail messages as the:

- ability to communicate at a convenient time;

- ability to correct your messages before sending;

- ability to archive and review prior correspondence.

The disadvantages of asynchronous communication should be brought to attention as well; a specific issue in this case can be the prolonged time to respond to an ongoing problem or uncertainty. Therefore, it is recommended to add a relevant notice to course regulations, such as: *Teachers will reply to students' e-mails every Monday and Thursday*, to let the users know when they can expect a reply.

The OLAT portal has a course component called *E-mail*. This is an e-mail function with an internal address book, which is very convenient for handling course communication. Unlike OLAT, Moodle does not have an integrated e-mail system or address book. External e-mail data of all registered course users is available in each user's profile.

If the learning portal does not offer e-mail access, specialized websites such as Academio.pl (see Figure 4) or MailGrupowy.pl can be used as an alternative.
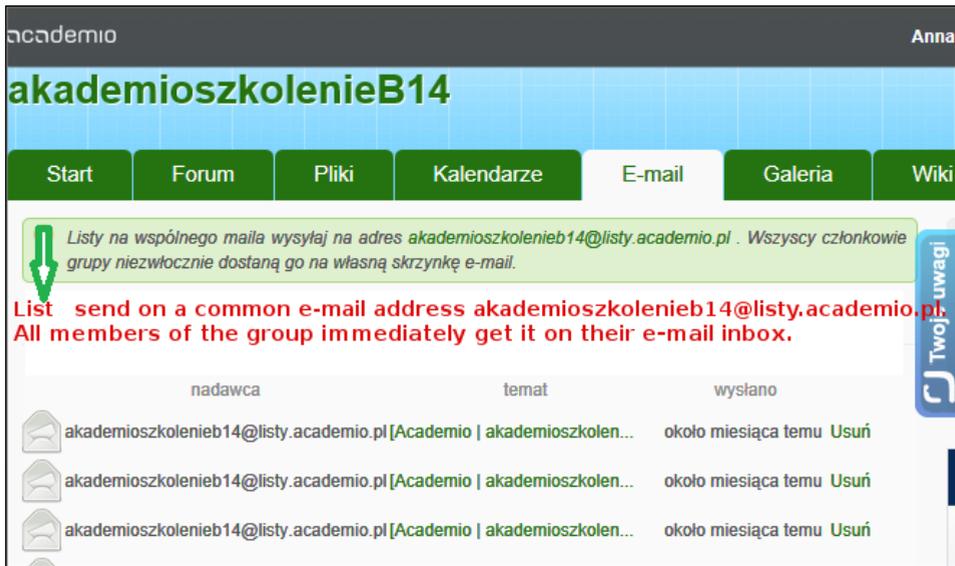
Figure 4. Academio.pl – a Polish website with e-mail services

Source: own elaboration

Academio.pl is a nationwide website enabling student groups (up to 260 persons) to communicate freely and efficiently. The following communication tools are offered:

- calendar,
- group mail,
- discussion board,
- forum.

MailGrupowy.pl is a free platform to support communication and coordination of various types of learning groups. The site facilitates gathering and sharing of materials together and solving problems. Every user has a separate account, however the e-mail address is shared by the whole group. The inbox comprises of a forum, e-mail and discussion group combined. Signed messages are accessible directly from the portal and do not "disappear" if deleted accidentally by any group member (see Figure 5). Teachers can send e-mail messages to the group's shared address and all members will be able to read the messages on the portal.
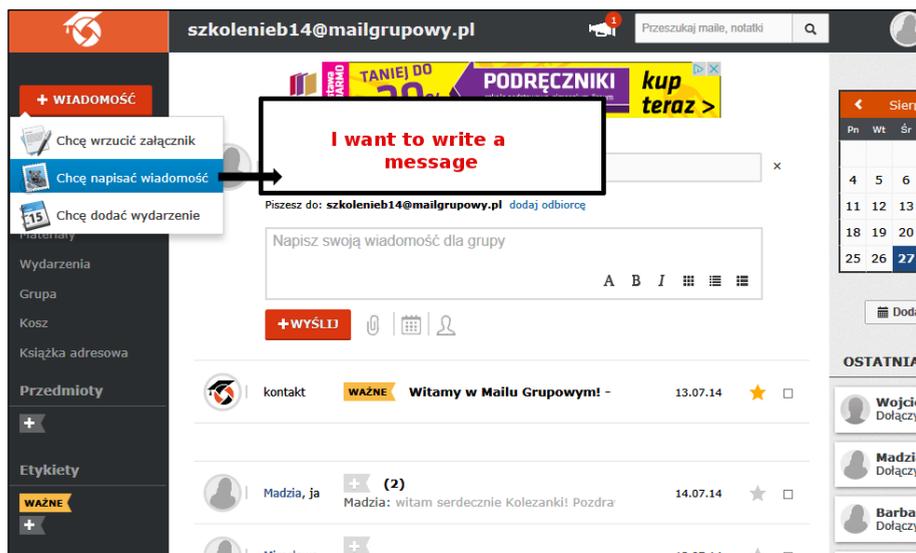
Figure 5. MailGrupowy.pl – a free Polish platform for communication and coordination that supports all kinds of learning groups

Source: own elaboration

3.2 Forum

Every e-learning course should have at least one discussion forum. Apart from e-mail, this tool is one of the most important asynchronous course communication tools. What aspects should be taken into account when choosing to use a discussion forum in a distance learning course?

- Discussion on a forum is asynchronous and therefore its duration is unlimited. It does not require the participants to be online at the same time. This is because forum posts are archived immediately and they are available to all course users as long as the course lasts, or as specified by the course administrator.

- A forum is a public discussion tool only. It is not possible to hide threads or posts from other course participants. Therefore, a forum should not be used for private conversations. The latter can be supported for example by e-mail.

- As users are given plenty of time to think about what they have to say and to carefully reply to the views expressed by other discussion participants, a forum is a perfect tool for engaging in academic discussions.

Functions of a forum

A discussion forum within a course can serve various purposes. We will review several selected applications (Centre for Distance Education of the

Jagiellonian   University,   http://www.czn.uj.edu.pl/moodle/mod/book/
view.php?id=26030&chapterid=21882&lang=en):

- *Consultation forum* – when the course only supports the traditional course, a forum may work as virtual consultation;

- *Organizational forum* – each course on a distance learning portal where only organizational matters are discussed, outside the subject matter of the course;

- *Topical forum* – this is a platform for sharing opinions and views on a specific subject. Such a forum can, but does not have to, be moderated by the teacher. Discussions can be evaluated, in which case students must be informed in advance. It is also reasonable to set a time limit for posting a reply.

  A topical forum can be managed in one of the two ways: first, you can invite students to spontaneously share their observations, inquiries, suggestions and comments on the issues discussed within the module, or you can schedule one or two discussion sessions to cover the key issues for the topic. In the latter case, discussion on the forum should be moderated by the teacher, i.e. initiated, moved onto the right track, structured and summarized.

- *Group forum* – this is a forum for group discussion about the issues stated by the teacher. Discussion on a forum may proceed according to different scenarios, such as:

    o all groups discussing the same issue without seeing each other, discussion is summarized on the general forum;

    o separate groups discuss different problems evaluated on an ongoing basis by the teacher;

    o groups discuss different topics but can view the discussions in other teams.

  Group forum can also be used as a space for executing group assignments, e.g. projects.

A forum is a standard communication tool offered by every e-learning portal. For example, Moodle offers as many as 5 different types of forums (Moodle 2.9 documentation, https://docs.moodle.org/29/en/Using_Forum):

- *Q&A forum* is the simplest available type of forum. It will work perfectly as a help forum, organizational forum or expert forum. Discussion participants ask questions and the person in charge answers these questions.

- *Standard forum for general use* is a forum without any special users - any user can open any number of discussion topics at any time and reply to any number of threads. This type of forum is the preferred solution for an academic discussion, consultation and online seminars.

- *Each person posts one discussion* type of forum applies a restriction of the number of threads created by each participant to one. However, each user can take part in any number of discussions initiated by others. This is a convenient solution if you want your students to independently start a discussion and continue moderating it according to their own concept.

- *A single simple discussion* is a forum with a single thread created by the course teacher. All course participants are invited to only discuss this topic. This type of forum can be a topical forum, expert forum, or presentation forum.

- *Standard forum displayed in a blog-like format* is an open forum where each course participant can open a new topic. All topics are displayed on a single page, with a link *Start a discussion.*

On OLAT, each group has one or more private forums. There are three types of groups:

- learning groups (related to the course),

- project groups (independent of the learning process),

- permission groups.
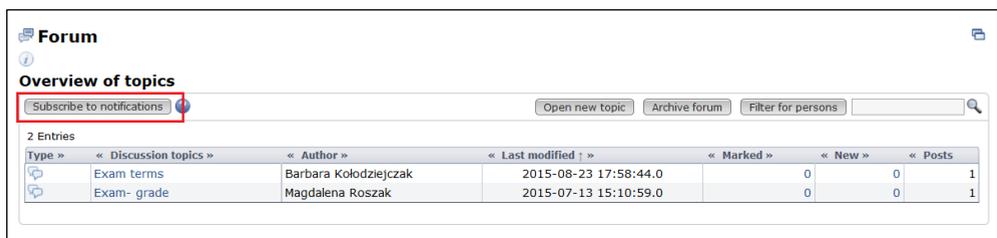
Figure 6. Forum subscription in OLAT

Source: own elaboration

Forum posts can be graded by the teacher, or by other course participants with specific permissions assigned, on the two above mentioned portals. You can subscribe to a forum (see Figure 6). If you subscribe for notifications of forum discussions, you will receive a copy of every new message from the given forum to the e-mail address you specify.

File window

A discussion initiated by a file is a type of forum narrowed down to an issue/problem associated with a file uploaded by the teacher (see Figure 7). This tool strongly facilitates asynchronous discussion because:

- discussion focuses around threads in a single topic related to the contents of the file,

- it is easier to maintain discussion discipline than in case of a traditional forum,

- new topics can be opened by discussion participants after they upload their own files and thus, discussion can be expanded with more logically associated threads.

This type of forum is offered by the OLAT portal.
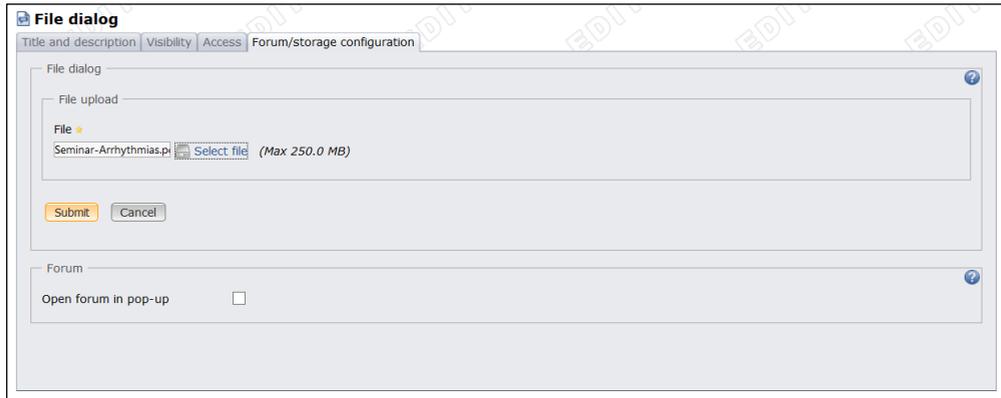
Figure 7. File dialog – configuration window in OLAT

Source: own elaboration

3.3 Wiki

Wiki is a type of website that can be created on a browser level. The tool was created by Ward Cunningham in 1994 (Wikipedia, http://en.wikipedia.org/wiki/Wiki).

Wiki applications use simpler data formatting than HTML (MediaWiki, https://www.mediawiki.org/wiki/Help:Formatting), which renders them extremely popular in the work of various professional specialization groups. Text messages must be formatted with a unique set of tags. There are only a few tags, and simple help is usually available. This tool is a favourite among those unfamiliar with the basics of HTML tag language, although working with an HTML editor can be not intuitive enough without this competence. Participants of an e-learning course who understand the concept of hypertext organization of text messages will learn the editing process in a relatively short time. Wiki can be used for knowledge creation and sharing, as well as for communication among online course participants (Wrycza-Bekier 2012: 45-47).

Wiki pages are created in real time by online group members. Every group member is able to read articles published on Wiki, modify them or add new pages of his own (see Figure 8). Only a registered owner or author of Wiki can delete Wiki pages.
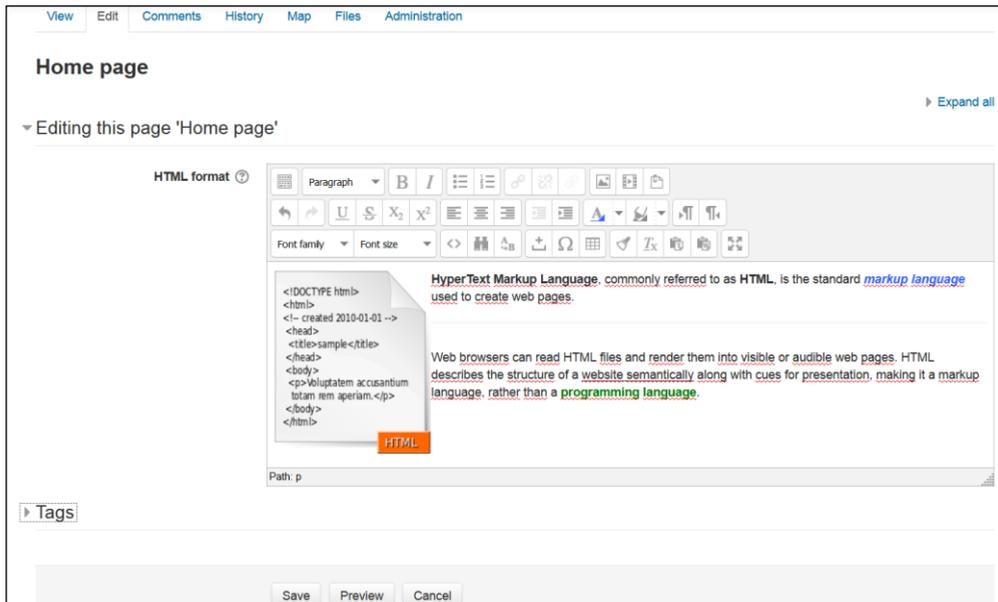
Figure 8. Edition of Wiki webpage in Moodle

Source: own elaboration

Wiki pages can be a typical asynchronous discussion platform within a group of users (Mokwa-Tarnowska 2014: 36). New threads in a discussion are added in the same way as on a forum. You can add an attachment to discussion contents, i.e. a presentation file, extra course materials, etc.

Threads are sorted by default according to the last modification time, and the most recent threads are at the end of the list. Portals also offer thread archiving options. Such archives can be used as documentation of group work on a common assignment or project.

Due to their structure, Wiki pages can be a perfect location for gathering complete contents and discussing any outstanding issues. Wiki as a type of forum can be used for usual asynchronous discussion among project group members as well as for consultation with the teacher or project supervisor. In addition, Wiki can be subscribed through an RSS feed. With such subscription, group members will receive Wiki updates, i.e. new articles and discussion threads (Palka 2012: 40).

Most e-learning portals offer the option of creating Wiki pages to their users. Moodle and OLAT support this service as well.

3.4 Calendar

Group calendar is among the basic tools of any e-learning portal. It combines asynchronous with synchronous communication methods. Using the calendar option,

group members can set deadlines online or check the availability of specified individuals.

A calendar may provide information not only about scheduled "group events" but also management of group work and to communicate progress. Information about every assignment or group activity may appear in the students' individual calendars. Such calendars show outstanding tasks in the relevant time according to the timetable, as well as give reminders about their completion.

Calendar plays an important role in communication between the teacher and group members along the course schedule implementation (Kołodziejczak, Roszak, Ren-Kurc, Kowalewski, Bręborowicz 2014: 429). A properly structured schedule should account for off-class periods and the right proportions between the material covered and the time devoted to cover such material. In addition, a calendar offers ongoing control of specific course activities, such as:

- start and end of work on specific modules (assignments),
- commencement and closing of discussions on specific forums,
- handing in the assignments for grading,
- self tests,
- exams,
- other activities.

Calendars can be included on e-learning portals as an element of the course, integrated with the user's private calendar. In this way, the student will not get lost on a schedule even if they participate in more than one course at a time. A very useful functionality of the calendar is the linking of a deadline with the relevant course element concerned. For example, when the time limit expires for handing in assignment 1, the calendar will show the date together with the hyperlink to that element in the course structure. Not all learning portals offer such options.

E-learning portals usually offer a calendar function but it may be implemented in a different way. For example, OLAT offers three types of calendars: course calendar, group calendar, and individual student calendar. Any authorized user can make an entry in the calendar or tag it as private (displayed to him only) or public (displayed to all registered users). If a user has more than one calendar (as a member of multiple groups, participant of more than one course), he can propagate a single entry to all his calendars. Entries from different calendars are distinguished according to user-defined colour coding schemes. The OLAT calendar has the function of linking an event with a corresponding course component. In addition, you can use iCal (date management standard) to integrate different OLAT calendars with others, e.g. with Google calendar, and vice versa. (OLAT 7.8 User Manual, http://www.olat.org/images/olat/downloads/manuals/help_en.pdf).

Moodle offers four types of color-coded deadlines in a shared calendar: a global deadline, group deadline, course deadline, and user deadline (see Figure 9). It is very easy to edit a calendar entry, and there is the added advantage of the calendar being displayed on the course page (usually on the right panel). Furthermore, later releases of Moodle support the export of selected parts of the calendar.
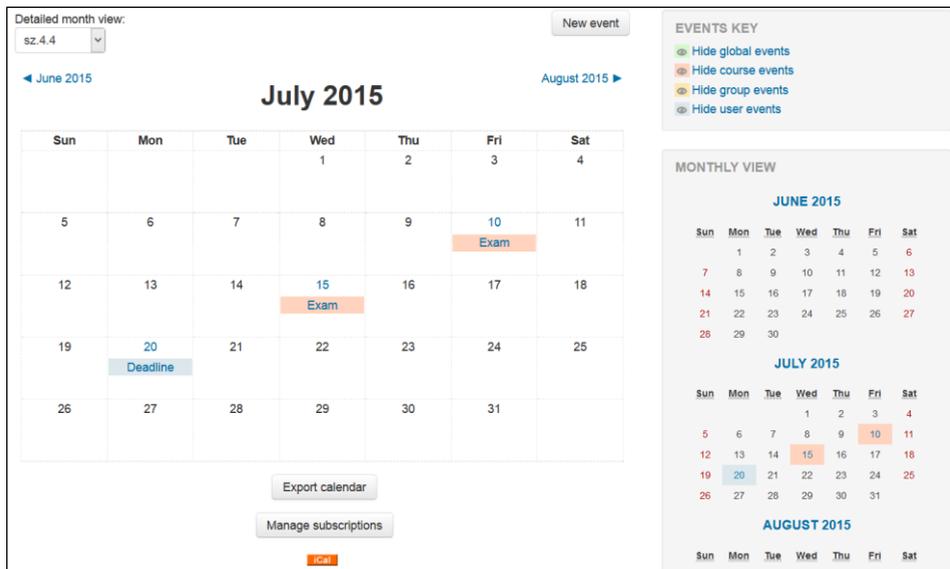

Figure 9. User calendar – month view

Source: own elaboration

CONCLUSIONS

Knowledge of teacher-to-student and student-to-student communication tools available on an e-learning portal is important for planning and creating an online course. The right choice of these tools can have a major impact on the learning quality and the course itself, particularly if the course is taught only on an online basis. This is because of such negative aspects of e-learning courses as isolation and a feeling of lack of support in overcoming difficulties. Thus, building an atmosphere that fosters integration and building motivation within the group of learners is an important part of course organization. Even very well prepared and professional materials would be insufficient without the support from competent persons or the ability to share your experience with other course participants. This, in turn, cannot be achieved without communication tools. Therefore, it is reasonable to demand that an online course teacher is familiar with these tools in the administrative aspect and in terms of their applicability in the learning process.

The communication tools available on e-learning portals can be used not only for university education, but also on other levels of education.

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