

COLLABORATIVE LEARNING SYSTEM AND METHOD

FIELD

The present disclosure relates to a method and system for facilitating collaborative learning over a computer network for supporting classroom based instructor lead learning.

5 BACKGROUND

With the rapid development of personal computing devices such as tablets, smart phones and portable computers with capacity to interconnect with each other and with computing networks such as the internet, today's students can rapidly search for and access knowledge from a wide variety of sources.

- 10 However, there exists a range of views as to how to integrate such technology and access in a typical classroom style learning environment of a school or college where one teacher/instructor teaches multiple students who are physically present in a classroom. Access to resources provided by such personal computing devices are seen by some as distractions from classroom based learning, interfering with student focus and their learning process. However, to others,
- 15 such personal computing devices provide access to unparalleled resources on a diverse range of topics which are able to enhance student's individual learning of material in their own different ways and at their own individual and different speeds.

- There do exist a number of virtual classroom learning resource platforms which comprise pre-configured or generated slide decks/materials/animations or similar on various topics which may
- 20 be used to support lessons in the classroom environment. However, such learning platforms typically add significant administrative overhead for a single instructor to enrol, manage, monitor and control usage of the computing devices and information accessed, especially during a lesson. Such difficulties are typically addressed by including multiple instructors or more time in preparing lessons and configuring administration either prior to or following such lessons.
- 25 However, it would be appreciated that these solutions are resource and time intensive.

It is an object of the present disclosure to provide a method and system for facilitating collaborative learning which at least partially ameliorates or addresses the above deficiencies or provides an alternative choice to the public.

SUMMARY

Features and advantages of the disclosure will be set forth in the description which follows, and in part will be apparent from the description, or can be learned by practice of the herein disclosed principles. The features and advantages of the disclosure can be realized and
5 obtained by means of the instruments and combinations particularly pointed out in the appended claims.

In accordance with a first aspect of the present disclosure, there is provided a collaborative learning system comprising at least one or more servers communicatively coupled to a plurality of computing devices and a database having a plurality of student profiles, at least some
10 student profiles being associated with one or more groups, the plurality of computing devices interconnected across a network, said plurality of computing devices comprising at least one instructor operable computing device, and a plurality of student operable computing devices;

wherein said instructor operable computing device has a processor configured for generating an instructor interface for receiving instructor selection of one or more options from a plurality of
15 allocation options; wherein the plurality of allocation options comprises:

allocation of student profiles in a group collectively as a group to a common predetermined scheduled learning session;

allocation of student profiles in a group to a specified time range in which a learning session for each student profile may be individually specified;

20 allocation of student profiles in a group to a specified deadline by which a learning session must be completed.

Advantageously, the interface generated by a processor of an instructor's computing device is further configured to receive input adding selected student profiles not already associated with a group to the group for allocation of a learning session thereto.

25 The interface generated by a processor of an instructor's computing device may be further configured include assignment of at least one or more predefined learning resources for the allocated learning sessions.

A region of the interface generated by a processor of an instructor's computing device may be configured to receive input from an instructor visible to all student profiles allocated to the
30 learning session.

The plurality of computing devices interconnected across the network further may include a plurality of learning guide operable computing devices having a processor configured to generate an interface displaying a plurality of requests for guides by a plurality of students

having allocated learning sessions. The interface may be configured to display sessions at a plurality of times for only the sessions which do not have a guide preference specified by the student. The interface may be populated with a plurality of allocated learning sessions having guide requests which are released at a predetermined time for selection therefrom. The attributes of a guide may be configured to determine which learning sessions of the plurality of allocated learning sessions are visible to that guide. Once selected by one guide the allocated learning session may be removed from display to the plurality of guides and is displayed in a calendar view visible only to the selecting guide. Optionally, once selected by one guide the status of the selected allocated learning session may be visually differentiated relative to the other allocated learning sessions in the interface viewed by other guides. Following the conclusion of the session and a selection of the same guide by the student, the next requested learning sessions for that student may not be displayed to the plurality of guides.

Optionally, the data exchanged in an allocated learning session may be transmitted between a plurality of student computing devices and a plurality of guide operable devices via the server wherein at least one or more authorised users can select one or more allocated learning sessions from the plurality of allocated learning sessions to receive the data for at least part of the session occurring between the student and guide.

Advantageously, no notification may be provided to either the student computing device or the guide's computing device for a selected allocated learning session that the authorised user is receiving data for at least part of that learning session. Notification may be provided to either the student or the guide of a selected session that the authorised user is receiving the data for at least part of that allocated learning session. A communication from the authorised user to either or both the student or guide of the selected session may be provided wherein said communication is displayed proximal a video and/or audio feed between the student and guide either during or after the learning session.

Optionally, the instructor operable computing device may include a processor configured for generating a further instructor interface for displaying a plurality of performance metrics for individual student profiles within the group and the group as a whole.

In a further aspect of the present disclosure, there is provided a method for allocating a plurality of student profiles associated with one or more groups to at least one or more learning sessions, the method comprising:

generating an instructor interface on an instructor operable computing device; wherein said instructor computing device is communicatively coupled to a server and a database storing at least one association of a plurality of student profiles with one or more groups,

and receiving by said instructor interface, session allocation for student profiles in a group, wherein allocations may be specified according to any one or more of the following allocation options using said interface:

- collective allocation of each of the student profiles in the group to a common predetermined
5 scheduled learning session; or
- allocation to a specified time range in which a learning session for each student profile may be individually specified; and/or
- allocation to a specified deadline by which a learning session must be completed.

- Optionally the method may further include assigning via the interface, allocation of at least one
10 additional student profile to a learning session, said at least one student profile not already being associated with the group. The method may further include assigning via the interface at least one or more predefined learning resources to the allocated learning sessions.

- The method may further include receiving input from an instructor for display on interfaces of student operable computing devices accessing student profiles allocated to the learning
15 session.

Learning sessions may be displayed on the interface which are allocated to a student profile and which do not include an assigned guide. The method may further include displaying to a specific guide only learning sessions for which that specific guide has been requested or learning sessions which do not have a guide preference specified by the student.

- 20 Optionally, the method may further include populating the interface with a plurality of requests for learning sessions which are released at a predetermined time to the plurality of guides for selection therefrom or displaying a selection of the plurality of sessions according to the attributes of a guide's profile.

- Once selected by one guide a session may be removed from display to the plurality of guides
25 and is visible only to the selecting guide or the status of the selected session is visually differentiated relative to the other sessions in the view to other guides.

- In a further aspect the method may further include displaying a plurality of allocated learning sessions for selection therefrom by at least one or more authorised users for receiving the data for at least part of the selected session occurring between a student computing device and a
30 guides computing device.

Optionally, the method may include receiving the data for at least part of the selected session occurring between a student computing device and a guide computing device with no notification to either or both the guide computing device and the student computing device or

may include notifying either or both the guide computing device and the student computing device. The method may include further providing a communication from the authorised user to either or both the student or guide of the selected session wherein said communication is displayed proximal a video feed region or a region for providing access to an audio feed
5 between the student and guide either during or after the session. The method may further including generating an instructor interface on completion of the allocated learning sessions for displaying a plurality of performance metrics for individual student profiles within the group and the group as a whole.

There is further provided a non-transitory computer readable medium for use in a collaborative
10 learning system, the non-transitory computer readable medium having encoded upon it instructions executable by the collaborative learning system for generating an interface for allocating a plurality of student profiles associated with one or more groups to at least one or more learning sessions, said process steps comprising:

generating an instructor interface on an instructor operable computing device; wherein said
15 instructor computing device is communicatively coupled to a server and a database storing at least one association of a plurality of student profiles with one or more groups,

receiving by said instructor interface, session allocation for student profiles in a group, wherein allocations may be specified by receiving instructor selection of one or more options from a plurality of allocation options; the plurality of allocation options comprising:

20 collective allocation of each of the student profiles in the group to a common predetermined scheduled learning session; or

allocation to a specified time range in which a learning session for each student profile may be individually specified; and/or

allocation to a specified deadline by which a learning session must be completed.

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BRIEF DESCRIPTION OF THE FIGURES

In order to describe the manner in which the above-recited and other advantages and features of the disclosure can be obtained, a more particular description of the principles briefly described above will be rendered by reference to specific embodiments thereof which are
30 illustrated in the appended figures. These figures depict only exemplary embodiments of the disclosure and are not therefore to be considered to be limiting of its scope, and by reference to such figures the principles herein are described and explained with additional specificity and detail.

Preferred embodiments of the present disclosure will be explained in further detail below by way of examples and with reference to the accompanying figures, in which:-

FIG 1 depicts an exemplary system architecture for a collaborative learning system according to an embodiment of the present disclosure.

- 5 FIG 2A depicts an exemplary interface generated by a processor of an instructor operable computing device for allocation of group/individuals to a scheduled learning session.

FIG 2B depicts an exemplary interface generated by a processor of an instructor operable computing device for allocation of learning resources and creating a new session booking.

- 10 FIG 3A depicts an exemplary interface generated by a processor of an instructor/guide operable computing device displaying requests by students for a plurality of learning sessions

FIG 3B depicts the exemplary interface of FIG 3A generated by a processor of an instructor/guide operable computing device following claiming of a further request for a learning session by an instructor or guide.

- 15 FIG 3C depicts an exemplary interface generated by a processor of an instructor/guide operable computing device for an instructor or guide after they have claimed a particular session with a student.

FIG 3D depicts an exemplary interface for a scheduled learning session where the specific instructor or guide has been requested by a student.

- 20 FIG 4A depicts an exemplary interface generated by a processor of a student's computing device including one unconfirmed allocated learning session and one confirmed allocated learning session.

FIG 4B depicts the exemplary interface generated a processor of a student's computing device of FIG 4A after both allocated learning sessions for a particular student have been confirmed.

- 25 FIG 5A depicts an exemplary interface generated by the processor of an authorised user's computing device showing a plurality of learning sessions prior to being claimed by one instructor/guide of a plurality of instructors/guides.

FIG 5B depicts an exemplary interface generated by the processor of an authorised user's computing device showing a plurality of learning sessions which have been claimed by respective instructors/guides.

FIG 6 depicts an exemplary interface generated by the processor of an authorised user's computing device for selection from a plurality of concurrent learning sessions, and upon selection the ability to provide feedback during/after a learning session.

FIG 7 depicts an exemplary performance feedback interface generated by the processor of an instructors computing device for display following completion of the allocated learning sessions by the students within the specific class group selected.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Various embodiments of the disclosure are discussed in detail below. While specific implementations are discussed, it should be understood that this is done for illustration purposes only. A person skilled in the relevant art will recognize that other components and configurations may be used without departing from the spirit and scope of the disclosure.

The disclosed technology addresses the need in the art for collaborative learning platforms which facilitate and enhance student experience in classroom based learning. The present disclosure provides a system for leveraging networked resources and remotely located guides who can assist learning, and support classroom based activities in a scalable manner yet requiring a minimum of additional administrative overhead to be expended by the main instructor (often a classroom teacher).

Referring to FIG 1 there is depicted a schematic architectural diagram for an exemplary system 10 for implementing the present disclosure.

As depicted, the system 10 includes an API server 20 in communication across a network 40 with at least one or more instructor operable computing devices 30a-n, at least one or more student operable computing devices 34a-n and at least one or more guide operable computing devices 38a-n, hereinafter collectively referred to as user clients. As is known in the art, such computing devices may include personal electronic devices such as personal computers, laptops, tablets and "smartphones" without departing from the scope of the present disclosure.

Each of the instructors 32a-n, students 36a-n, and guides 39a-n access the API server 20 across a network 40; with access controlled via requisite specific and separate user profiles 42 stored on a database 50. Optionally the database 50 may also be configured to store user generated content, including learning session bookings made by instructors 32a-n operating instructor operable computing devices via an interface as described herein; curriculum resources combinations; user progression information and system configuration and audit logs.

It would be appreciated that the network **40** could comprise any form of wired or wireless data communications network such as a WAN, a LAN and the computers and networks forming the internet.

Access to the API Server is advantageously configured to be granted to authorised users via a
5 load balancer **22**, which distributes incoming connections according to server load and request type. The load balancer **22** communicates requests to other micro-services servers, including a real time services server **24**, an API backend services server **26** and an email server(s) **28**. The real time services server **24** is configured to provide real time sharing functionality for client interactions with various real time aspects of the system including text communication with and
10 between clients, cursor and slide synchronisation etc. The API backend services server **26** may be configured to provide the user interface information for generation of the various interfaces of by the processor of the client computing devices as described herein; and to communicate with the database **50** across a wired or wireless network. The email services server **28** is similarly in communication with the database **50** to provide automated emails and notifications to the client
15 devices as appropriate.

Advantageously, the user client computing devices are also in communication across the communications network with media server **60** through which live audio/video learning sessions offered by the system between student operable computing devices and guide operable computing devices may be provided. As discussed herein, such sessions may be monitored by
20 an instructor operable computing device (assuming that instructor has an appropriate access profile) for quality assurance purposes by accessing data processed on media server **60**. The media server **60** may also be communicatively coupled with and to asset server **62**, on which video recordings of the sessions may be stored.

Further the client computing devices may also be in communication across the communications
25 network **40** with asset server **62** on which data of learning sessions may be stored, as well as learning resources for such sessions including slides, images, audio and video clips.

It would be appreciated by a person skilled in the art that a variety of alternative configurations could also be provided analogous to the above schematic architecture. However, such configurations would also need to be capable of providing the necessary scalability offered by
30 the system and method of the present disclosure, with the provided network infrastructure described maintaining the overall responsiveness and client experience within adequate performance metrics.

As depicted in FIG 2A, there is shown an exemplary instructor booking interface **100** which is generated by the processor of an instructor operable computing device for receiving instructor allocation of learning sessions for student profiles which are a member of one or more groups.

5 The interface provides for multiple ways in which the students may be allocated to learning sessions. The allocation may be collectively for all members of a particular group to a common pre-determined scheduled learning session. Alternatively the allocation may be made by the instructor to a specified time range in which a learning session for each student profile may be individually specified; and/or to a specified deadline by which a session must be completed. Optionally both a specified time range and a deadline, or either a specified time range or a
10 deadline may be provided by the instructor.

Once the type selector **108** is selected for allocation of a group of student profiles to a learning session, the interface **100** may be configured as described below.

A specific group of student profiles from amongst one or more groups which have been created in the system can be made by selecting a group from the drop down list box **110** of the interface
15 **100**. Group names could be, for example, Grade 10, Friday Morning or something more memorable and specific to a group (e.g. New Biological Science Group, Batch 10). Although a drop down box **110** is depicted, it would be appreciated that other similar means for selecting specified groups from a list of groups could also be used.

Additional students may be added to the group on an ad-hoc basis by the teacher, for example,
20 if a transferred student has been included who has not yet been updated as a member of the selected group. The individual drop down list box **112** may be used to add an individual along with the group to an allocated learning session; capturing input for the inclusion of specific individual profiles in the system. It would also be appreciated that other similar such methods for specifying an individual student profile from amongst a plurality of student profiles for
25 inclusion with a group allocation of learning sessions may also be used without departing from the scope of the present disclosure.

Optionally, the instructor may specify a date and/or time range during which a session should be undertaken by the members of the group by using the interface, specifically by specifying the range in the range entry box **114a**. As familiar to a person skilled in the art, similar ways of
30 specifying the range could include numerical input, selection from a calendar, selection from a rotary dial of date/month/year without departing from the scope of the present disclosure.

By specifying a range of times in which a learning session for a group of student profiles, the instructor allows individual students the opportunity to schedule and then subsequently complete an assigned session at their own time, but within, a specified range of times. For example, the instructor could specify for a particular group, a range of times in which learning sessions could be performed, (e.g. between 9:00 am and 3:00 pm on Tuesdays) and then individual students schedule their own a particular session in this time.

Alternatively, or in addition to specifying a range of learning times, the instructor may specify a collective deadline for all student profiles in a group, by selection of the group and specifying a hard deadline **116** by which the learning session must be completed.

Finally, it would also be appreciated that the interface may be used to specify a concurrent learning session at a specific time for all student profiles associated with the selected group. For example, the Year 10 class on Friday mornings may all be assigned to a learning session at 10:00 a.m. on Friday, 20 September.

Optionally, a specific topic and learning resources associated with that topic for a particular learning session may be specified using the topic selection combo box **120**, or other similar means to select from a list of pre-populated topics. In this way, appropriate learning materials to support a session may be included in the same interface by which individual and group student profiles are allocated to the relevant learning session.

Optionally, as depicted a free text entry field **122** or similar field may be included in the interface **100**, for additional supporting comments to be made by the instructor in relation to the specified session.

There is also included a booking button **123**, on the interface to trigger submission of the instructor input to the server across the network described in FIG 1.

Accordingly, the interface **100** allows an instructor to allocate a group of students to learning sessions intuitively, flexibly and with minimal administrative effort. Using the instructor interface in the way described is particularly appropriate for instructors who are familiar with the resources and materials available on the platform.

It would be appreciated that the interface **100** could also be configured such that upon selection of the type selector **108** button, an interface is provided by which individual student profiles who are not members of a particular group may be allocated to learning sessions at a pre-determined time, within a specified time range, or by a specified deadline by which the session must be completed in a similar arrangement (not shown).

Optionally, as further depicted in FIG 2B, the instructor booking interface may also be linked with a topic interface **130**, which provides a way in which instructors can browse learning resources and then book their students into a learning session accessing these resources using the interface **100** as described with reference to FIG 2A.

- 5 If utilised in this way, the Topic field **120** could be pre-populated with the selected topic and learning resources. In the embodiment depicted, the topic interface **130** includes a plurality of levels **132**.

As depicted, the first level is a "Galaxy level" **134** and the topic includes a booking button **134a**, and a variety of associated learning resources, including the slides **134b**, vocabulary list **134c**,
10 supporting audio files **134d** and appropriate quiz or questions testing comprehension **134e**. Activation of the booking button triggers the booking interface of FIG 2A as described above.

Associated with the level two ("Planets") **136** are a similar booking button **136a**, and learning resources buttons for assigning and/or previewing learning resources, being slides **136b**, vocabulary **136c**, audio **136d**, and quiz files **136e** (markings omitted from Figure for clarity
15 purposes). Finally, at the specific level of atmosphere **138**, similar booking button **128a**, and learning materials and resources buttons (slides **138b**, vocabulary **138c**, audio **138d**, and quiz files **138e**) may be included.

It would be appreciated that the content described is merely exemplary, and is particularly appropriate for subject and material in which there is a particular progression, for example, the
20 learning of a second language, a specific syllabus of an educational curriculum or similar. However, it would be appreciated that the specific type of learning resource and the way in which this learning resource is linked is not limited; and the above examples and levels are exemplary only.

Referring now to FIG 3A, there is depicted an exemplary guide interface **150** with a plurality of
25 requests for allocated learning sessions **152**, **162** and **172** generated for specific student profiles for particular dates (and optionally times), in this case sorted by proximity to the present date/time.

Advantageously it would be appreciated that such requests may be generated by the main instructor (such as a classroom teacher) using the booking interface **100** in the various
30 modalities of session allocation described above.

It would be appreciated that the learning guide may be a person verified by the collaborative learning management system for particular topics who may be available to provide additional support to the main classroom instructor in the learning sessions.

5 In many cases, these guides may be remotely located at a different location from the student operable computing device. In some instances, it would be appreciated that the guides could potentially also be the instructor, although this would not allow the learning system of the present disclosure to scale.

10 Referring to request **152**, it can be seen that the requests available are for allocated learning sessions for a specified date (and optionally a specific time) **156**, with a specific student, for a specified duration. In the request depicted Ding has learning session on 18 September for a 2-hour duration which has been selected by the specific guide (or instructor) accessing the interface (and hence is shown as Claimed). It would be appreciated that other modalities of selection of requested learning sessions described above may also be utilised to generate this request.

15 Once a request such as request **152** is selected by a particular guide (or instructor) the interface **140** may be configured so that "CLAIMED" requests are no longer visible to other learning guides or instructors.

20 Similarly, it can be seen that there are similar parameters for request two **162**, including a specific date **164**, a specific student name **166**, a specific duration **168**, and a specific status **169**. The status for the second request **162** as depicted at this point in time is available, in this instance the status is indicated by the actuable status button (shown as "CLAIM") **169** being visually differentiated from the status of a similar button **159** (shown as "CLAIMED") in request one **152**.

25 Similarly, for request three **172**, there is depicted a specific date (and/or optionally time), for a specific student, **176**, for a specific duration **178** and having a specific status **179**.

Accordingly, in the guide interface **150** depicted in FIG 3A, one session has been claimed, being requested by the specific guide or instructor accessing the interface, with two other requests **162** and **172** potentially being available.

30 Depending on the guide or instructor's schedule, willingness to undertake additional learning sessions with a specific student(s), and other factors such as the guide's credentials etc., it is envisaged that the guide or instructor may use the interface **150** to allocate to themselves particular learning sessions from the plurality of learning sessions available in a self-service

allocation approach. In this way there is flexibility for the guides to select from the plurality of learning sessions initiated on the system in an on-demand fashion.

Referring now to FIG 3B, there is depicted the interface **150** modified by the additional request **162**, having been claimed by the instructor or guide accessing the plurality of allocated learning sessions requests. Request **172** is still potentially available and has not yet been claimed. "Claimed" learning sessions may or may not be visible to other instructors according to the configuration of the system.

Accordingly, in this way, the request for a particular allocated learning session may be made available to a plurality of individually authorised instructors or guides, who are able to select from the plurality of available sessions, and specify themselves for the particular student, time and allocated learning session request such that the allocated session is claimed/confirmed.

Once a guide or instructor for an allocated learning session has been confirmed, it would be appreciated that this confirmed session could be included in another guide or instructor interface **180** as shown in FIG 3C; with such confirmed sessions visible only to the respective guide or instructor. Such confirmed sessions may include the specific content **151**, specific date **154**, specific student **157**, duration and status **159**, and may be a convenient way for guides to access their upcoming sessions.

Referring to FIG 3D, there is a variant of guide interface **180a** in which request **152a**, **162a** and **172a** are displayed. It would be appreciated that in FIG 3A, one of the requests is taken ("claimed") **152**, in FIG 3B two of the requests are taken ("claimed") **152**, **162** and in FIG 3D, all three of the available requests are taken ("claimed") by the instructor or guide to become confirmed allocated learning sessions.

Furthermore, it would be appreciated in these particular cases, there is a specific request by a student for a preferred instructor, in this case the instructor accessing the interface is popular, with students Ding, Ming and Sam (request **152a**, **162a** and **172a**) having allocated learning sessions they wish to schedule with the instructor or guide. Such requests for specific sessions with specific instructors may or may not be displayed to all instructors depending on the configuration of the system. As depicted, none of the sessions have yet been confirmed or taken by this instructor.

In addition some instructors may have specific certifications (e.g. working with ADD children, deaf children) or attributes (e.g. teaching Maths to 6 year olds) which could be specified in each instructor's profile; and where such certifications/ attributes can be used to filter and match the

allocated learning sessions for specific student profiles visible to and selectable by that instructor.

It would be appreciated that the allocated learning sessions may be released at predetermined times (e.g. 9 am each Tuesday morning) thereby providing instructors or guides logged into the system at this time the opportunity to select the sessions which they wish to confirm, according to their work levels, schedule and optimum desired sessions etc.

Referring now to FIG 4A, there is depicted an exemplary student interface **190** for confirmation of allocated learning sessions. In this case a student Ming (name not visible although having a profile on the system) has two allocated learning sessions (scheduled, within a specified range, or due by a particular deadline) **162a**, **162b**.

Ming is still awaiting confirmation of the requested allocated learning session **162a** on 18 September by a guide or instructor (see instructor view FIG 3A); although Ming has another learning session **162b** confirmed with guide Mr Chan on Friday 20 September.

Once the guide or instructor has confirmed they are available to teach a session (e.g. by claiming the session as shown in FIG 3B), the view on the student interface for Ming is as shown in FIG 4B; with Ming having two scheduled and confirmed sessions **162a**, **162b** with a guide/instructor.

Referring now to FIG 5A, there is depicted an administrator or authorised user perspective of an interface **200** showing the plurality of allocated sessions available. In the exemplary interface, it can be seen that students **202**, **204**, **206**, **208**, **210** and **212** each have various upcoming sessions which have been allocated and scheduled to them but for which the topics and guides have yet to be confirmed.

Referring to student **202a** - Ding Chen- Ding has a scheduled an allocated learning session on 18 September 2019 **202b**; although guide or instructor **202c**; and the topic **202d** have yet to be specified. "Optional Invitation" buttons to the student **202e** and the guide **202f** are included so that the authorised user is able to manually facilitate if necessary confirmation of an allocated learning session between the student and guide.

Referring now to FIG 5B, there is depicted an updated version of the interface **200**, in which the student **202** Ding Chen has been confirmed an allocated learning session in **202b** with a particular guide Ms Du **202c** on a particular topic "The Earth". Invitations **202e** and **202f** have been despatched and received by the student and guide respectively as shown by the amended icons.

Referring to the next student **204**, Ming Lo, it can be seen that although the student, date and guide or instructor **204c**, topic **204d**, have all been scheduled, this allocated learning session is not yet confirmed as is represented by the state of buttons **204e** and **204f**.

5 Similarly, the interface includes various details and status for the other students **206,208,210**, which are at the various stages shown.

Referring now to FIG 6, there is depicted a further exemplary interface **230** visible to an authorised user for administration. This interface may be generated to enable the authorised user (such as a classroom teacher) to monitor a plurality of learning sessions which may be taking place at the time when that authorised user is logged on. It would be appreciated that
10 these learning sessions may be scheduled using the interface of FIG 2A, that is by allocating the learning sessions to a common pre-determined time, specifying a range of times in which the sessions need to be completed, and/or by specifying a deadline by which such sessions need to be completed.

As depicted, at the instant at which the authorised user has generated the interface **230** on their
15 computing device, there are three sessions running.

Session one **232** is between student Ding Chen, and guide Ms Du.

Session two **234** is between student Ming Lo and guide Mr Chan and session three **236** is between student Sam Ho and guide Ms Cheung.

Each of the sessions include an optional "Attend" buttons- for session one the "Attend" button is
20 **233**, for session two the "Attend" button is **235**, and for session three, the "Attend" button is **237**.

It would be appreciated that actuation of any one of the "Investigate" buttons may be used to generate a further session interface **240** in which a visual and/or audio data feed from the network for the session between user one **242a** and user two **242b** may be displayed. Optionally, a note field **244** may be included by which the authorised user can communicate with
25 either or both of the user that their session is being moderated.

Optional selection fields **246a**, **246b** allow the authorised user to communicate the feedback in the note field **244** to the either or both users **242a**, **242b**. Actuation of button **246a** communicates the feedback during the session, or such feedback may be communicated after the session by selection of button **246b**.

30 By using this feature, a classroom teacher or other authorised user may join a learning session and receive the data transmitted between a guide or instructor's computing device and the

student's computing device for a particular learning session; advantageously directly from the media server or asset server to avoid increasing bandwidth consumed.

In this way, an instructor can monitor multiple learning sessions which are taking place between students and users of the platform, including multiple concurrent learning sessions (e.g. if all students in a particular group are undertaking a learning session at the same time).

Optionally, depending on the settings, notification may be provided to either or both the student and the instructor that the session is being monitored or quality assurance purposes.

It would also be appreciated that other means for displaying feedback on the particular session could be displayed, in the interface depicted, such feedback is usually provided proximal the student and the instructor information that is being received.

Referring now to FIG 7 there is depicted an exemplary performance feedback interface 300 generated by the processor of an instructors computing device for display following completion of the allocated learning sessions by the students within the specific class group selected.

As depicted, a selection of performance attributes 310 is shown for students of Tutor A, including Total Score 312, Process 314, General Knowledge 316, Application 318, although other relevant attributes could also be included without departing from the scope of the present specification.

As depicted the specific scores obtained by students Ming Chen 302; Ding Lo 304 and Sam Ho 306 are shown for each of the attributes. It would be appreciated that these scores could be aggregated to present a score for the group as a whole in tabular format 330 or in a graphical form, 332. This feedback assists the teacher in determining the overall effectiveness of the learning sessions in terms of achievement by the students of certain performance criteria both from individual and collective perspectives. Having this information enables the teacher to undertake corrective action (if required) at an early stage; and identify potentially problematic areas and thereby make an informed decision as to what future lessons may be required.

The present invention provides a seamless way by which a classroom teacher or instructor can administer and manage learning sessions taking place in a classroom type environment, with data for learning resources and/or data for remotely located guides and/or instructors transmitted across a data network.

Importantly, students may be allocated particular learning sessions, and resources, collectively as a group to sessions occurring at the same pre-determined time (for example 3:00 pm on

Friday, or within a specified time range (e.g. between 9:00 am and 12:00 noon on Thursday), and/ or by a specified deadline, for example, Friday at 12:00 noon using an interface of the present disclosure.

5 For students that join their class on an ad hoc basis, or who are otherwise not included in a group, the interfaces configured to allow seamless addition of such students to whatever learning session has been allocated.

Where students are allocated to individual learning sessions in which a human or virtual guide is assigned, a further aspect of the present disclosure provides an interface for efficiently facilitating self-confirmation by guides to particular allocated learning sessions at specific times
10 with particular students.

Using the monitoring interface of the present disclosure, notwithstanding that the classroom teacher has facilitated the multiple learning sessions between students and remote instructors or guides (potentially even concurrent learning sessions), the teacher or central instructor is still able to manage and monitor the learning sessions as they take place; and thereby provide
15 overall quality assurance (both perceived and actual) in the collaborative learning process.

Accordingly, the scheduling, allocation of instructors or guides and quality assurance of learning system that take place according to the present disclosure provide an efficient, easy and scalable solution for making network resources (including remotely located guides) available to students. This in turn allows students to learn at individual place, and engage with the content
20 which is being delivered and supplementing their classroom based learning.

Furthermore, allowing guides to claim learning sessions means that little administrative overhead is expended to arrange a match between a student and a guide. At the same time, the system has significant flexibility to fit with schedules of both students and guides- students are able to choose times that suit their personal schedules, and guides (who may be based in
25 various time zones) are also able to claim sessions that suit their own schedules. If a session is scheduled for a pre-determined time which is approaching; and it looks as if this session will go unclaimed, the system can be configured to provide additional incentives to claim the session (e.g. a higher payment rate). The system may also optionally be configured to automatically notify a pool of standby guides who may be available for various blocks of predetermined times
30 to teach any unclaimed lessons.

Advantageously, the use of a media server to relay video or audio streams allows for “attending” a session - via a region displaying learning session video or the learning session’s audio stream

without consuming additional network bandwidth from the guide's or student's computer. The guide and the student each have only one video and/or audio stream connection to the media server, and their video/audio streams can be relayed or broadcast to any number of additional viewers (school teachers, administrators, quality assurance staff etc.) without the need for
5 additional connections from the guide operable computing device or student operable computing device. Furthermore, the use of a media server also facilitates recording the video and/or audio sessions for safety and quality assurance purposes.

The information provided on a collective and individual basis to students enables rapid communication of learning progression; and enables the instructor to undertake further
10 corrective action and address additional learning needs early in the learning process. This is especially important in subjects such as language or mathematics which require appropriate foundational knowledge before more complex additional levels are undertaken.

The above embodiments are described by way of example only. Many variations are possible without departing from the scope of the invention as defined in the appended claims.

15 For clarity of explanation, in some instances the present technology may be presented as including individual functional blocks including functional blocks comprising devices, device components, steps or routines in a method embodied in software, or combinations of hardware and software.

Methods according to the above-described examples can be implemented using computer-executable instructions that are stored or otherwise available from computer readable media.
20 Such instructions can comprise, for example, instructions and data which cause or otherwise configure a general purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. Portions of computer resources used can be accessible over a network. The computer executable instructions may
25 be, for example, binaries, intermediate format instructions such as assembly language, firmware, or source code. Examples of computer-readable media that may be used to store instructions, information used, and/or information created during methods according to described examples include magnetic or optical disks, flash memory, Universal Serial Bus (USB) devices provided with non-volatile memory, networked storage devices, and so on.

30 Devices implementing methods according to these disclosures can comprise hardware, firmware and/or software, and can take any of a variety of form factors. Typical examples of such form factors include laptops, smart phones, small form factor personal computers, personal digital assistants, and so on. Functionality described herein also can be embodied in

peripherals or add-in cards. Such functionality can also be implemented on a circuit board among different chips or different processes executing in a single device, by way of further example.

5 The instructions, media for conveying such instructions, computing resources for executing them, and other structures for supporting such computing resources are means for providing the functions described in these disclosures.

10 Although a variety of examples and other information was used to explain aspects within the scope of the appended claims, no limitation of the claims should be implied based on particular features or arrangements in such examples, as one of ordinary skill would be able to use these examples to derive a wide variety of implementations. Further and although some subject matter may have been described in language specific to examples of structural features and/or method steps, it is to be understood that the subject matter defined in the appended claims is not necessarily limited to these described features or acts. For example, such functionality can be distributed differently or performed in components other than those identified herein. Rather, 15 the described features and steps are disclosed as examples of components of systems and methods within the scope of the appended claims.