



Mobile Device Interfaces

Lecture No. 5

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Interactive Learning Platforms: The WizIQ paradigm



Issues encountered

- Interactive, participatory design is gaining momentum for the remote access of learning resources and acquisition of knowledge.
- Electronic platforms deploy a client-server model that is increasingly extending hypertext communication to multimedia level interaction.
- This model of electronic learning is carried out by a variety of electronic devices, with the most recent newcomers being tablets, mobile devices and similar paraphernalia.
- A studying paradigm, in which lectures are broadcasted over the Internet while students may participate intervening drastically while being instructed will be presented.
- Conclusion – future trends.



The WizIQ paradigm of distance learning

The **WizIQ** software uses a learning platform that simulates the virtual classroom formed when an instructor communicates interactively with his remote students.

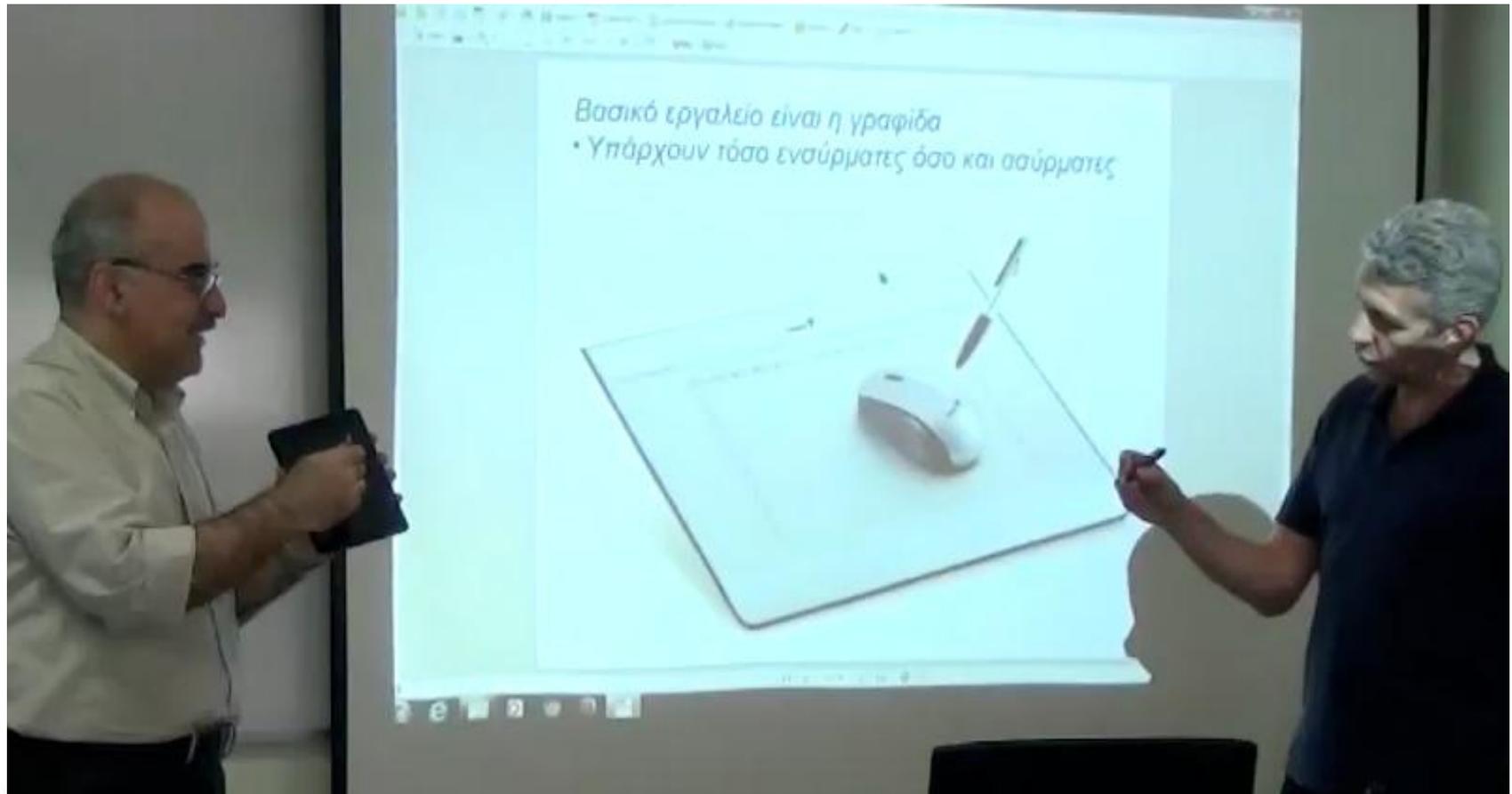
More specifically:

- E-Learning providers lease through this platform “accounts” that allow them to create distance learning sessions
- They create virtual classes that function providing lists of intended educational events and time schedules.
- Particular activities are promoted that enhance systematic instruction and the practice of teaching over a network
- Learning curves of a student’s progress or acquired skills may be readily deduced



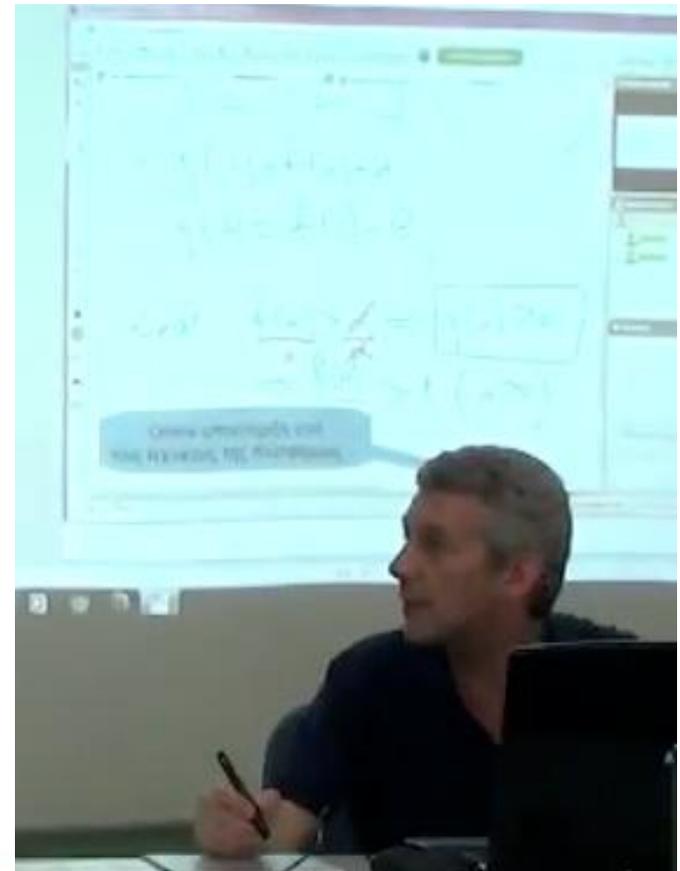
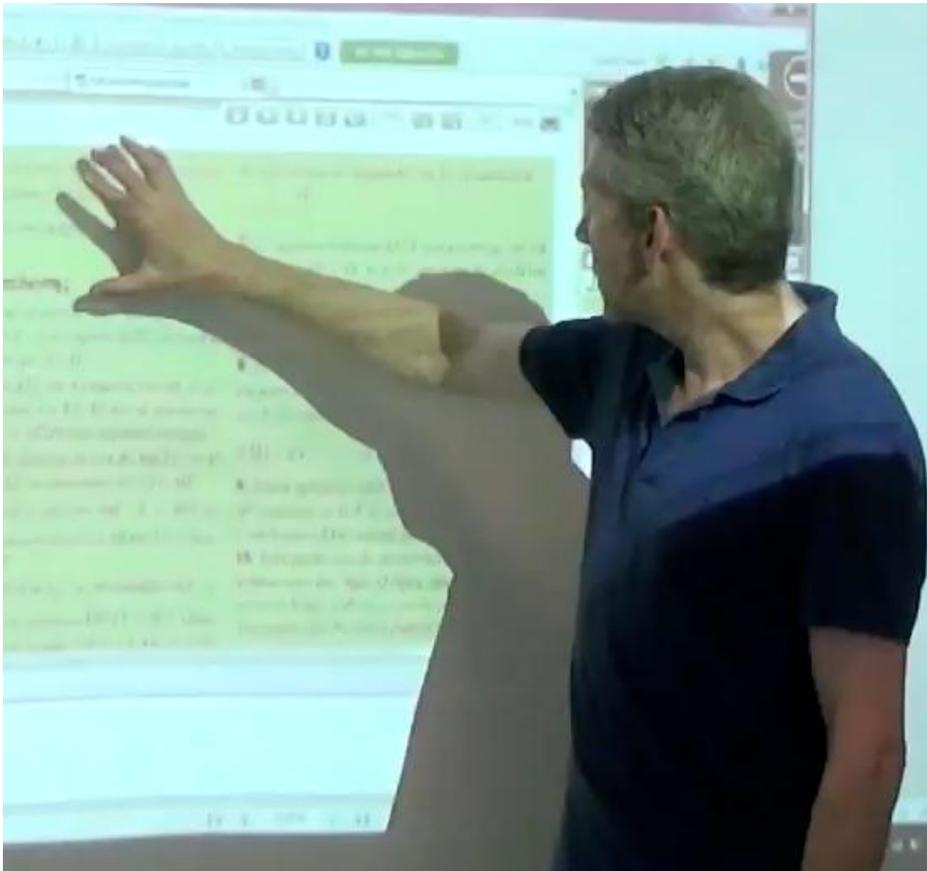
The WizIQ paradigm of distance learning

This category of platforms offers increased interactivity when using styluses or similar pointing devices; recently, tablet surfaces may be used as well.



An iconic presentation of the teaching methodology

The snapshots that follow, focus on the potential that interactive multimedia learning offers to the school of future.



An iconic presentation of the teaching methodology

The standard User Interface deployed by the WizIQ platform:

The screenshot displays the WizIQ Smart Class interface. The main content area shows a whiteboard with the title "2 ΜΙΓΑΛΙΚΟΙ ΑΡΙΘΜΟΙ" and the text "λύσεις της είναι οι συζυγείς μιγαδικοί αριθμοί: $i\sqrt{4} = 1 - i$ ". Below this, it says "ΠΑΡΑΤΗΡΗΣΗ" and "Παρατηρούμε ότι και εδώ ισχύουν οι σχέσεις: $z_1 + z_2 = \frac{-\beta}{\alpha}$ και $z_1 z_2 = \frac{\gamma}{\alpha}$ ". The section "ΕΦΑΡΜΟΓΕΣ" includes a problem: "1. Για τις διάφορες τιμές του θετικού ακέραιου n να υπολογιστεί το άθροισμα $S = i + i^2 + i^3 + \dots + i^n$ ". The "ΛΥΣΗ" section begins with "Οι προσθετέοι του αθροίσματος έχουν πλήθος n και είναι διαδοχικοί όροι γεωμετρικής προόδου με πρώτο όρο i και λόγο επίσης i . Επομένως". The interface includes a top navigation bar with "Try New Classroom", a right sidebar with "Live video stream", "Attendee list (2)", and "Chat (All)", and a bottom status bar with "Live Support Chat" and "Time Remaining 03:50:17".

A blue callout box on the left contains the text: "A variety of working environments is offered ...".

An iconic presentation of the teaching methodology

The screenshot shows a live classroom session on WiziQ. The main whiteboard displays a derivation of the dot product formula for the square of the distance between two points. The text on the whiteboard includes:

$(AB)^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2 = x_1^2 + y_1^2 + x_2^2 + y_2^2 - 2(x_2 - x_1)(y_2 - y_1)$

η οποία ισχύει και στην περίπτωση που τα σημεία είναι συνευθειακά.
Όμως είναι

$(AB)^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2 = x_1^2 + y_1^2 + x_2^2 + y_2^2 - 2(x_2 - x_1)(y_2 - y_1)$

Επομένως έχουμε διαδοχικά

$(OA)(OB)\text{ συν} \hat{A}OB = \vec{a} \cdot \vec{b} = x_1x_2 + y_1y_2$

και επειδή $(OA)(OB)\text{ συν} \hat{A}OB = \vec{a} \cdot \vec{b}$, έχουμε τελικά:

$\vec{a} \cdot \vec{b} = x_1x_2 + y_1y_2$

Δηλαδή:

“Το εσωτερικό γινόμενο δύο διανυσμάτων είναι ίσο με το άθροισμα των γινόμενων των ομώνυμων συντεταγμένων τους”.

Για παράδειγμα, το εσωτερικό γινόμενο των $\vec{a} = (-3, 4)$ και $\vec{b} = (2, -1)$ είναι:

$\vec{a} \cdot \vec{b} = (-3) \cdot 2 + 4 \cdot (-1) = -10$.

Με τη βοήθεια της αναλυτικής έκφρασης του εσωτερικού γινομένου θα αποδείξουμε ότι ισχύουν οι επόμενες ιδιότητες:

The interface also features a sidebar with an attendee list (Smartclass (You) and one other participant), a chat area, and a 'Time Remaining' indicator at the bottom right showing 04:07:44.

... with a multitude of chromatic compounds



An iconic presentation of the teaching methodology

The instructor during the on-line session can transfer his handwritten “whiteboard” learning material to his remote students enabling interactive visual communication.

The screenshot displays a web browser window titled "Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox". The address bar shows a URL from live.wiziq.com. The interface includes a top navigation bar with options like "File", "Edit", "Screen", "Poll", "Breakout room", and "Try New Classroom". The main area is a whiteboard with handwritten mathematical content:

$$g(x) = f(x) - \alpha$$
$$g(b) = f(b) - \beta$$

Below these, there is a handwritten derivation:

$$\text{απειρα: } \frac{f(x)}{\alpha} > \frac{\beta}{\alpha} \Rightarrow \boxed{g(x) > 0}$$
$$\Rightarrow \frac{f(x)}{\alpha} > 1 \quad (\alpha > 0)$$

The right sidebar contains a "Live video stream" section, an "Attendee list (2)" showing "Smart Class (You)" and two other participants, and a "Chat (All)" section. At the bottom, there is a "Live Support Chat" button and a "Time Remaining 03:38:36" indicator.

Online support is offered if service provision is disrupted



An iconic presentation of the teaching methodology

Although strictly scheduled, there is flexibility in extending sessions...

The screenshot shows a web browser window titled "Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox" displaying a WiziQ Smart Class session. The main content area shows a math lesson in Greek with exercises E2 and E3. A "Class settings" dialog box is open, allowing the teacher to extend the session. The dialog has two sections: "Extend session:" with a dropdown menu set to "Limit Ended", and "Alert:" with a dropdown menu set to "Before 5 mins". There are "OK" and "Cancel" buttons at the bottom of the dialog. On the right side of the interface, there is a "Live video stream" area, an "Attendee list (2)" showing "Smart Class (You)" and two other participants, and a "Chat (All)" area. At the bottom of the browser window, there is a "Live Support Chat" button and a "Time Remaining 03:30:28" indicator.

Renewing time leases



An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=3m3CZH0gU0yd%2fm6tpne9%2bA%3d%3d>. The interface includes a top navigation bar with buttons for "File", "Edit", "Screen", "Poll", "Breakout room", and "Try New Classroom". Below this, there are tabs for "Ασκ.Μαθημ.Κατευθ-7-5", "Whiteboard 9", "μαθημ.κατευθ-γλυκ", and "Whiteboard 11". The main whiteboard area contains handwritten mathematical equations: $g(x) = f(x) - \alpha$, $g(\beta) = f(\beta) - \beta$, and $g(x) > 0$ (boxed). A blue callout bubble points to the chat area, stating: "If voice communication is disrupted, involved parties can communicate using the chat area". The right sidebar features a "Live video stream" section, an "Attendee list (2)" showing "Smart Class (You)" and two other participants, and a "Chat (All)" section with a message input field and a "Send" button. The bottom status bar shows "Live Support Chat", "Time Remaining 03:38:36", and the "WizIQ" logo.

An iconic presentation of the teaching methodology

The screenshot displays the SmartClass web interface. The main area is a whiteboard with handwritten mathematical content. The top row shows the inequality $f(b) > 1$ with arrows pointing to $(b > 1)$ and $\frac{1}{f(b)} > \frac{1}{b}$. The bottom row shows $f(b) < b \Rightarrow f(b) - b < 0$, with a box around the expression $f(b) - b < 0$ and an arrow pointing to $f(b) < 0$. A blue callout box points to the menu bar on the left, which contains options like 'New Tab', 'Close Tab', 'Take a Snapshot', 'Upload from desktop', 'Open content library', 'Media Player', 'Screen sharing', 'Poll', 'Breakout room', and 'End Class'. The right sidebar includes a 'Live video stream' section, an 'Attendee list (2)' showing 'Smart Class (You)' and two other participants, and a 'Chat (All)' section. The bottom status bar shows 'Live Support Chat', 'Time Remaining 03:36:32', and the 'WizIQ' logo.

Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox
https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=3m3CZH0gU0yd%2fm6tpne9%2bA%3d%3d

File Edit Screen Poll Breakout room Try New Classroom Smart Class

Whiteboard 9 μαθημ.κατευθ-γλυπ Whiteboard 11 Whiteboard 12

$f(b) > 1 \Rightarrow (b > 1) \Rightarrow \frac{1}{f(b)} > \frac{1}{b}$

$f(b) < b \Rightarrow f(b) - b < 0$

$f(b) < 0$

Attendee list (2)
Smart Class (You)
[Participant 1]
[Participant 2]

Chat (All)

To: All 12 Send

Write your message here. 300 Send

Live Support Chat Time Remaining 03:36:32 WizIQ

A multitude of interactive plug-ins can be seen invoking menu bars

An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=3m3CZHOgU0yd%2fm6tpne9%2bA%3d%3d>. The interface includes a top navigation bar with "File", "Edit", "Screen", "Poll", "Breakout room", and "Try New Classroom" buttons. A PDF document titled "Ασκ.Μαθημ.Κατευθ-7-5-15.pdf" is open, showing math problems in Greek. A "Mic Settings" dialog box is open, showing "Mic Status" as active, "Input Volume" at approximately 75%, and "Microphone in Use" as "Microphone (High Definition Au...". An "Attendee list (2)" panel shows "Smart Class (You)" and two other participants. A "Chat (All)" panel is also visible. A blue callout box points to the microphone settings, containing the text: "Microphone volume settings alongside camera advanced settings provide smooth audio-visual communication". The bottom status bar shows "Live Support Chat", "Time Remaining 03:54:51", and the "WizIQ" logo.

Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox

<https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=3m3CZHOgU0yd%2fm6tpne9%2bA%3d%3d>

File Edit Screen Poll Breakout room Try New Classroom Smart Class

Ασκ.Μαθημ.Κατευθ-7-5-15.pdf

E2. Να βρείτε τον γεωμετρικό τόπο $x \in \mathbb{R}$.

E3. Να αποδείξετε ότι η συνάρτηση $g(x) = \operatorname{Re}(z\bar{w})$ δεν έχει ακρότατα

Άσκηση 2

Έστω παραγωγίσιμη συνάρτηση $f : [\alpha, \beta] \rightarrow \mathbb{R}$ με $f(\alpha) > \alpha > 0$ τέτοια ώστε, ο μιγαδικός αριθμός $z = \frac{\beta + if(\beta)}{\alpha - if(\alpha)}$ να είναι φανταστικός. Να αποδείξετε ότι:

E1. Η εξίσωση $f(x) = x$ έχει τουλάχιστον μια ρίζα στο (α, β) .

E2. Υπάρχει τουλάχιστον ένα $x_0 \in (\alpha, \beta)$ τέτοιο ώστε $f'(x_0) = 0$.

E3. Αν η εξίσωση $f(x) = x$ έχει λύσεις στο διάστημα (α, β) , τότε υπάρχουν αριθμοί x_1, x_2 με $x_1 < x_2$ τέτοιοι ώστε να μην υπάρχει αριθμός x που να ικανοποιεί $f(x) = x$ και να είναι άρρητος. Η λύση του προβλήματος δίνεται από την αρχή των αξόνων.

Άσκηση 3

Έστω μια συνάρτηση $f(x)$, π

Mic Settings:

Mic Status:

Input Volume:

Microphone in Use: Microphone (High Definition Au... [Advanced Settings](#)

Attendee list (2)

Smart Class (You)

Chat (All)

To: All 12

Write your message here. 300

All

Live Support Chat Time Remaining 03:54:51 WizIQ

Microphone volume settings alongside camera advanced settings provide smooth audio-visual communication

An iconic presentation of the teaching methodology

The screenshot displays the WiziQ Smart Class interface. The main whiteboard area contains handwritten Greek text $\forall x \text{ συνάρτηση}$ and the mathematical inequality $-1 \leq f(x) \leq 1$ with $x \in [0,1]$. A context menu is open over the whiteboard, listing options: Background..., Rename, Take a Snapshot, and Toggle Grid View. A blue callout box points to this menu with the text: "For each whiteboard session invoked there are various formatting and recording options offered". The interface includes a top navigation bar with buttons for File, Edit, Screen, Poll, Breakout room, and Try New Classroom. The right sidebar features a Live video stream, an Attendee list (2) showing participants with icons for video, audio, and chat, and a Chat (All) section with a message input field and a Send button. The bottom status bar shows "Live Support Chat", "Time Remaining 04:14:33", and the WiziQ logo.

For each whiteboard session invoked there are various formatting and recording options offered



An iconic presentation of the teaching methodology

The screenshot displays the WizIQ online education platform interface. At the top, the WizIQ logo is on the left, and navigation links for Sign Out, Support, Blog, English, for Learners, and a phone number are on the right. Below the navigation, there are menu items for Features, Pricing, Customers, Integrations, Resources, and About. A 'Smart' dropdown menu with a notification badge '19' is also visible.

The main content area is titled 'My Content' and features a sidebar on the left with options like 'Upload Content', 'Embed Content', and 'My Content' (with sub-items: Uploaded Content: 291, Embedded Content: 0, Shared With Me: 0, Favourite Content). Below this are 'My Folders' and a 'Processing Status' section.

The main content area is titled 'Uploaded content' and includes a search bar, a 'Search' button, and tabs for 'All', 'Private', and 'Public'. A 'Filter by' dropdown is also present. The list of uploaded content includes:

- Βιολογία Β'-Κεφάλαιο 2** by Smart Class, 1 week ago, 44 Pages, 0 View, 0 Comment. Actions: Edit, Delete, Change Folder.
- biologia_kat_gl_25-04-2014** by Smart Class, 1 week ago, 7 Pages, 0 View, 0 Comment. Actions: Edit, Delete, Add to Folder.
- content AEΠΠ 4-4** by Smart Class, 1 week ago, 4 Pages, 0 View, 0 Comment. Actions: Edit, Delete, Change Folder.
- Βιολογία Β'-Κεφάλαιο 1** by Smart Class, 2 weeks ago.

A blue callout box on the right side of the page contains the text: 'Each on-line school provides a "Content Library" to its students, formed out of public and private sources...'. A vertical 'feedback' button is located on the far right edge of the page.

An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=egNXhB15dRLCgoF5a9eTVQ%3d%3d>. The interface includes a top navigation bar with buttons for "File", "Edit", "Screen", "Poll", "Breakout room", and "Try New Classroom". A "Smart Class" status bar is visible on the right. The main content area is a whiteboard titled "Whiteboard 1" with the subject "α-β ΛΥΚΕΙΟΥ-ΓΕΩΜΕΤΡΙΑ". The whiteboard contains a geometry problem in Greek and a list of exercises. A blue callout box with the text "... like this on-line public book" points to the text on the whiteboard. The right sidebar features a "Live video stream" section (currently showing "You have stopped sharing video"), an "Attendee list (0)" section (showing "Smart Class (You)"), and a "Chat (All)" section. The bottom of the interface includes a "Live Support Chat" button, a "Time Remaining 01:02:19" indicator, and the "WizIQ" logo.

Μαθηματικά - Teacher - Mozilla Firefox
https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=egNXhB15dRLCgoF5a9eTVQ%3d%3d

File Edit Screen Poll Breakout room Try New Classroom

Smart Class

Whiteboard 1 α-β ΛΥΚΕΙΟΥ-ΓΕΩΜΕΤΡΙΑ

175% 116 / 356

5. Σε ορθογώνιο τρίγωνο $ABΓ$ ($\hat{A} = 90^\circ$) ο κύκλος με διάμετρον $BΓ$ διέρχεται από το A ; η $BΔ$ τέμνει την πλευρά $ΑΓ$ στο E , να αποδείξετε ότι $AE = \frac{EF}{2}$.

Να δικαιολογήσετε την απάντησή σας.

Σε παραλληλόγραμμο $ΑΒΓΔ$ προεκτείνουμε την $ΑΒ$ κατά τμήμα $BE = AB$. Αν η $ΔE$ τέμνει την $ΑΓ$ στο H και η $ΑΔ$ τέμνει την $ΒΓ$ στο Z , να αποδείξετε ότι $ZH = \frac{AH}{2}$.

Ασκήσεις Εμπέδωσης

1. Αν $Δ$ και E είναι τα μέσα των πλευρών $ΑΒ$ και $ΑΓ$ του τριγώνου $ΑΒΓ$ και Z τυχαίο σημείο της $BΓ$, να αποδείξετε ότι η $ΔE$ διχοτομεί την AZ .
2. Δίνεται τρίγωνο $ΑΒΓ$ και η διάμέσός του $ΑΔ$. Αν $Ζ$ και H είναι τα μέσα των $BΔ$, $ΑΔ$ και $ΑΓ$ αντίστοιχα, να αποδείξετε ότι το $ΔEZH$ είναι παραλληλόγραμμο.
3. Σε τρίγωνο $ΑΒΓ$ φέρουμε τα ύψη $BΔ$ και $ΓE$. Αν M είναι το μέσο της $BΓ$, να αποδείξετε ότι $MΔ = ME$.
4. Δίνεται ορθογώνιο τρίγωνο $ΑΒΓ$ ($\hat{A} = 90^\circ$) με $\hat{B} = 30^\circ$. Αν M το μέσο της υποτεινούσας $BΓ$ τέμνει την πλευρά $ΑΒ$ στο E , να αποδείξετε ότι $ME = \frac{AB}{3}$.
5. Αν σε τρίγωνο $ΑΒΓ$ οι προβολές των κορυφών A και B στην υποτεινούσα $BΓ$ είναι H και K αντίστοιχα, να αποδείξετε ότι $EΗ \perp KZ$.
6. Δίνεται ορθογώνιο τρίγωνο $ΑΒΓ$ ($\hat{A} = 90^\circ$) με $\hat{B} = 30^\circ$. Αν H , K οι προβολές των κορυφών A και B στην υποτεινούσα $BΓ$ είναι H και K αντίστοιχα, να αποδείξετε ότι $EΗ \perp KZ$.

... like this on-line public book

Attendee list (0)
Smart Class (You)
There are no attendees in the class yet.

Chat (All)
To: All 12
Write your message here. 300
Send

Live Support Chat Time Remaining 01:02:19 WizIQ

An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=3m3CZHOgU0yd%2fm6tpne9%2bA%3d%3d>. The interface includes a top navigation bar with options like "File", "Edit", "Screen", "Poll", "Breakout room", and "Try New Classroom".

The main content area shows a document titled "Ασκ.Μαθημ.Κατευθ-7-5-15." with the following text:

Ε2. Να βρείτε τον γεωμετρικό τόπο $x \in \mathbf{R}$.

Ε3. Να αποδείξετε ότι η συνάρτηση $g(x) = \operatorname{Re}(z \cdot \bar{w})$ δεν έχει ακρότατα.

Άσκηση 2

Έστω παραγωγίσιμη συνάρτηση $f : [\alpha, \beta] \rightarrow \mathbf{R}$ με $f(\alpha) > \alpha > 0$ τέτοια ώστε, ο πραγμαδικός αριθμός $z = \frac{\beta + if(\beta)}{\alpha - if(\alpha)}$ να είναι φανταστικός. Να αποδείξετε ότι:

Ε1. Η εξίσωση $f(x) = x$ έχει τουλάχιστον μια ρίζα στο (α, β) .

Ε2. Υπάρχει τουλάχιστον ένα $x_0 \in (\alpha, \beta)$ τέτοιο ώστε $f'(x_0) < 1$.

Ε3. Αν η εξίσωση $f(x) = x$ έχει λύσεις στο διάστημα (α, β) τους αριθμούς x_1, x_2 με $x_1 < x_2$, τότε υπάρχει εφαπτομένη της C_f που διέρχεται από

στο $[0, 1]$ και είναι παραγωγίσιμη και

The right sidebar contains a "Live video stream" section with two empty video thumbnails, an "Attendee list (2)" section showing "Smart Class (You)" and two other participants, and a "Chat (All)" section with a message input field and a "Send" button. The bottom status bar shows "Live Support Chat", "Time Remaining 03:28:58", and the "WizIQ" logo.

However, external files and e-books can be uploaded and offered via the virtual learning environment to the school's students

An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox". The address bar shows a URL from wiziq.com. The browser interface includes a menu bar (File, Edit, Screen, Poll, Breakout room) and a "Try New Classroom" button. The main content area features a whiteboard with handwritten mathematical work. The whiteboard is divided into sections labeled "Whiteboard 9" and "Whiteboard 11". The equations written are:

$$g(x) = f(x) - \alpha$$
$$g(\beta) = f(\beta) - \beta$$

Below these, a derivation is shown:

$$\text{απειρα: } \frac{f(x)}{\alpha} > \frac{\alpha}{\alpha} \Rightarrow g(x) > \alpha$$
$$\Rightarrow \frac{f(x)}{\alpha} > 1 \quad (\alpha > 1)$$

The interface also includes a sidebar on the right with a "Live video stream" section, an "Attendee list (2)" showing "Smart Class (You)" and two other participants, and a "Chat (All)" section. A blue callout bubble points to the whiteboard content.

The virtual learning environment is capable of handling multiple learning sessions and whiteboard interactive surfaces

An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox". The address bar shows a URL from wiziq.com. The browser interface includes a menu bar (File, Edit, Screen, Poll, Breakout room, Try New Classroom) and a toolbar with various icons. The main content area is a whiteboard with the following handwritten text:

$$f: [a, b] \rightarrow \mathbb{R}, f(x) > x > 0$$
$$z = \frac{b + i f(b)}{a - i f(a)} \text{ σε αντιστάσεις}$$

(α). να δείξει ότι: $f(x) = x$
τον $\lambda x \cdot 1 \in i f(a) \in [a, b]$

The right sidebar contains a "Live video stream" section, an "Attendee list (2)" showing two participants, and a "Chat (All)" section. The bottom of the interface features a "smartclass" logo and a "To: All" dropdown menu.

The overall “touch and feel” is as if the student is attending ex-cathedra teaching in front of the class’ whiteboard

An iconic presentation of the teaching methodology

In the following slides, some special tools that enhance the multimedia learning interactivity are presented.



An iconic presentation of the teaching methodology

Communicating simultaneously with many students

- *Every time a student wishes to address himself within the virtual classroom, he “clicks” on the appropriate button.*
- *Within the instructor’s graphical user interface a “hands up” sign appears next to the participating student’s name.*
- *The instructor, using his pointing device, selects the “acknowledgement” mark upon the pop-up window that emerges out of the student’s name-label.*
- *Depending on the course taught, more than a handful of students can readily achieve interactive, distance training.*



An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=azbxoJJQikgLw66Qm3gsTQ%3d%3d>. The interface includes a top navigation bar with options like "File", "Edit", "Screen sharing", "Poll", "Breakout room", and "Back to Classic View". The main area is a whiteboard with the title "ΙΔΙΟΤΗΤΕΣ ΕΣΩΤΕΡΙΚΟΥ ΓΙΝΟΜΕΝΟΥ" and the text "Αντιμεταθετική ιδότητα". A hand-drawn diagram shows a circle with a dot and a line, and the equation $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$ is written below it. A blue arrow points from the equation to a callout box. The right sidebar contains a "Live video stream" section, an "Attendee list (1)" showing "Smartclass (You)", and a "Chat (All)" section with a message input field and a "Write your message here." prompt. The bottom right corner shows "Time Remaining 04:18:01" and the "WizIQ" logo.

Whiteboard 1 μαθημακατεθ-βλυκ Whiteboard 3

ΙΔΙΟΤΗΤΕΣ ΕΣΩΤΕΡΙΚΟΥ ΓΙΝΟΜΕΝΟΥ

Αντιμεταθετική ιδότητα

$$\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$$

With this tool, both text and figures may be moved

smartclass

Attendee list (1)

Smartclass (You)

Chat (All)

To: All 12

Write your message here. 300

All

Time Remaining 04:18:01 WizIQ

An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=3m3CZH0gU0yd%2fm6tpne9%2bA%3d%3d>. The interface includes a menu bar with options like "File", "Edit", "Screen", "Poll", and "Breakout room". A toolbar on the left contains various drawing and editing tools. The main content area shows a document with Greek text and mathematical problems. A blue callout box labeled "The pointing tool ..." points to a red arrow icon in the toolbar. Another blue callout box labeled "The pointer" points to a red horizontal line drawn on the document. The right sidebar contains a "Live video stream" section, an "Attendee list (2)" showing "Smart Class (You)" and two other participants, and a "Chat (All)" section with a message input field and a "Send" button. At the bottom, there is a "Live Support Chat" button, a "Time Remaining 03:28:58" indicator, and a "WizIQ" logo.

Μαθηματικά Κατεύθυνσης - Teacher - Mozilla Firefox
https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=3m3CZH0gU0yd%2fm6tpne9%2bA%3d%3d

File Edit Screen Poll Breakout room Try New Classroom Smart Class

Ασκ.Μαθμ.Κατευθ-7-5-15.
Ε2. Να βρείτε τον γεωμετρικό τόπο $x \in \mathbb{R}$.
Να αποδείξετε ότι η συνάρτηση $g(x) = \operatorname{Re}(z \cdot \bar{w})$ δεν έχει ακρότητα.

Άσκηση 2
Εστω παράσταση $z = a + ib$ με $a > 0$ τέτοια ώστε, ο μιγαδικός αριθμός $z - a - ib$ να είναι φανταστικός. Να αποδείξετε ότι:
 $a - \operatorname{Im}(z)$

Ε1. Η εξίσωση $f(x) = x$ έχει τουλάχιστον μια ρίζα στο (α, β) .
Ε2. Υπάρχει τουλάχιστον ένα $x_0 \in (\alpha, \beta)$ τέτοιο ώστε $f'(x_0) < 1$.
Ε3. Αν η εξίσωση $f(x) = x$ έχει λύσεις στο διάστημα (α, β) τουλάχιστον δύο, x_1, x_2 με $x_1 < x_2$, τότε υπάρχει εφαπτομένη της C_f που διέρχεται από την αρχή των αξόνων.

Άσκηση 3
Εστω μια συνάρτηση $f(x)$, που ορίζεται στο $[0, 1]$ και είναι παραγωγίσιμη και $f(0) = 0, f(1) = 1, f'(x) > 0, f''(x) < 0, f'''(x) > 0$ για κάθε $x \in (0, 1)$.

Live video stream
Attendee list (2)
Smart Class (You)
Chat (All)
To: All 12
Write your message here. 300 Send
Live Support Chat Time Remaining 03:28:58 WizIQ

An iconic presentation of the teaching methodology

The screenshot shows a web browser window titled "Μαθηματικά - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/liveext/LoginToSession.aspx?SessionCode=azbxoIJQikgLw66Qm3gsTQ%3d%3d>. The interface includes a top navigation bar with "File", "Edit", "Screen sharing", "Poll", "Breakout room", and "Back to Classic View". Below this is a toolbar with various icons for drawing and editing. The main area is a whiteboard with the title "ΙΔΙΟΤΗΤΕΣ ΕΣΩΤΕΡΙΚΟΥ ΓΙΝΟΜΕΝΟΥ" and the text "Αντιμεταθετική ιδότητα". A handwritten equation is shown: $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$. A blue callout box points to the pencil icon in the toolbar, labeled "The instructor's pencil tool". Another blue callout box points to the text tool icon in the toolbar, labeled "The text tool". On the right side, there is a "Live video stream" section and a "Chat (All)" section with a message input field and a "Send" button. The bottom right corner shows "Time Remaining 04:18:01" and the "WizIQ" logo.



An iconic presentation of the teaching methodology

The screenshot displays a web-based classroom interface. The main whiteboard contains the following mathematical content:

$$f: [a, b] \rightarrow \mathbb{R}, f(a) > a > 0$$
$$z = \frac{b + i^2 f(b)}{d - i f(a)}$$

Below the equations, there is handwritten Greek text: "επιπλέον ισχύει: $f(x) = x$ " and "για $x \in [a, b]$ ".

At the bottom of the whiteboard, the function $g(x) = f(x)$ is written.

On the right side of the interface, there is an "Attendee list (2)" showing two participants with icons for video, audio, and chat. A blue callout bubble points to the pencil icon in the attendee list, with the text "The student's pencil tool".

Another blue callout bubble points to a toolbar on the left side of the whiteboard, which includes icons for basic shapes, block arrows, and line connectors. This bubble contains the text "The basic shapes, block arrows and line connectors tool".

The interface also shows a "Live video stream" area, a "Chat (All)" area, and a "Time Remaining 03:48:30" indicator at the bottom right.

An iconic presentation of the teaching methodology

The screenshot displays a web-based whiteboard interface. The main workspace contains a hand-drawn coordinate system with a horizontal x-axis and a vertical y-axis. Two vectors, labeled A and B, originate from the origin. Vector A is in the first quadrant, and vector B is in the second quadrant. The angle between the x-axis and vector A is labeled θ . A rotated coordinate system with axes x' and y' is also shown. A blue callout box labeled "The line tool" points to a blue line drawn across the workspace. Another blue callout box labeled "The grid tool" points to the grid lines in the workspace. The interface includes a top menu bar with options like "File", "Edit", "Screen sharing", "Poll", and "Breakout". A right sidebar contains a "Live video stream" section, an "Attendee list (1)" showing "Smartclass (You)", and a "Chat (All)" section. The bottom status bar shows "Time Remaining 03:58:31" and the "WizIQ" logo.



An iconic presentation of the teaching methodology

The rectangle tool

The triangle tool

The circle tool

The screenshot displays a web browser window titled "Μαθηματικά - Teacher - Mozilla Firefox" with a URL from live.wiziq.com. The main content is a whiteboard with a coordinate system. The horizontal axis is labeled x and the vertical axis is labeled y . A rotated coordinate system is also shown with axes x' and y' . Several vectors originate from the origin: \vec{a} along the x -axis, \vec{b} in the first quadrant, \vec{c} in the second quadrant, and \vec{d} in the third quadrant. A point P is marked in the first quadrant. A blue callout box labeled "The rectangle tool" points to the square icon in the left toolbar. Another blue callout box labeled "The triangle tool" points to the triangle icon. A third blue callout box labeled "The circle tool" points to the circle icon. The right sidebar contains a "Live video stream" section (currently blank), an "Attendee list (1)" showing "Smartclass (You)", and a "Chat (All)" section with a message input field and a "300" character count. At the bottom right, a "Time Remaining 03:58:31" and "WizIQ" logo are visible.



An iconic presentation of the teaching methodology

The screenshot displays a web-based classroom interface. The main area is a whiteboard with handwritten Greek text and mathematical symbols. The text includes "Εφαρμογή ΘΜΤ", "Γεω [0,1]", and "Βάση ΘΜΤ". There are also mathematical expressions involving f , $G \cup X \cup S$, and $G \cup [0,1]$. A toolbar on the left contains various drawing tools like a pencil, eraser, and shapes. A "Theme Colors" palette is also visible. The right sidebar shows a "Live video stream" area, an "Attendee list (2)" with two participants, and a "Chat (All)" section. The bottom of the interface includes a "Live Support Chat" button, a "Time Remaining 04:28:32" indicator, and a "WizIQ" logo.

Tools for changing pencil and theme colors & inserting shapes

An iconic presentation of the teaching methodology

The screenshot shows a web browser window titled "Μαθηματικά - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/liveext/LoginToSession.aspx?SessionCode=azbxoIJQikgLw66Qm3gsTQ%3d%3d>. The interface includes a top navigation bar with options like "File", "Edit", "Screen sharing", "Poll", "Breakout room", and "Back to Classic View". The main content area is a whiteboard with the title "ΙΔΙΟΤΗΤΕΣ ΕΣΩΤΕΡΙΚΟΥ ΓΙΝΟΜΕΝΟΥ" and the text "Αντιμεταθετική ιδότητα". A hand-drawn diagram shows a circle with a vertical line through its center. Below it, the vector equation $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$ is written. A vertical toolbar on the left contains various drawing tools. Two blue callout boxes with red text point to the eraser tool and the delete shape tools in the toolbar. The right sidebar contains a "Live video stream" section, a "Chat (All)" section with 12 participants, and a "Time Remaining 04:18:01" indicator. A "WizIQ" logo is visible in the bottom right corner.

Whiteboard 1 μαθημακατευθ-βλυκ Whiteboard 3

ΙΔΙΟΤΗΤΕΣ ΕΣΩΤΕΡΙΚΟΥ ΓΙΝΟΜΕΝΟΥ

Αντιμεταθετική ιδότητα

$\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$

The eraser tool

The delete shape tools

Chat (All) 12

Time Remaining 04:18:01

WizIQ



An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/liveext/LoginToSession.aspx?SessionCode=azbxoIJQikgLw66Qm3gsTQ%3d%3d>. The browser's address bar and navigation buttons are visible. The main content area is a whiteboard with the title "ΙΔΙΟΤΗΤΕΣ ΕΣΩΤΕΡΙΚΟΥ ΓΙΝΟΜΕΝΟΥ" and the subtitle "Αντιμεταθετική ιδότητα". Below the subtitle, the mathematical equation $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$ is written in blue ink. A blue arrow points from a text box at the bottom left to the undo and redo icons in the whiteboard's toolbar. The right sidebar contains a "Live video stream" section with a placeholder image and a warning "This player has security vulnerabilities. Activate...". Below this is an "Attendee list (1)" showing "Smartclass (You)" and another user with a yellow profile picture. The "Chat (All)" section is empty. At the bottom of the sidebar, there is a "To: All" dropdown, a "12" indicator, and a "Write your message here." input field with a "300" character count and a send button. The bottom right corner of the interface shows "Time Remaining 04:18:01" and the "WiziQ" logo.

The “undo (Ctrl+Z)
– redo (Ctrl+Y)” tools



An iconic presentation of the teaching methodology

The screenshot displays a web browser window titled "Μαθηματικά - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/aliveext/LoginToSession.aspx?SessionCode=azbxoIJQikgLw66Qm3gsTQ%3d%3d>. The interface includes a top navigation bar with options like "File", "Edit", "Screen sharing", "Poll", "Breakout room", and "Back to Classic View". The main area features a whiteboard with the title "ΙΔΙΟΤΗΤΕΣ ΕΣΩΤΕΡΙΚΟΥ ΓΙΝΟΜΕΝΟΥ" and the text "Α μεταθετική ιδότητα". A handwritten equation is shown:
$$\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$$
. A blue callout box points to the "insert files from library" tool icon in the left sidebar, with the text: "The 'insert files from library' tool". Another blue callout box points to the "insert external files" tool icon in the top navigation bar, with the text: "The 'insert external files' tool". A third blue callout box points to the "insert external files" tool icon in the right sidebar, with the text: "The user may outsource a variety of files". The interface also shows a "Live video stream" area, a "Chat (All)" section, and a "Write your message here." input field. The bottom status bar indicates "Time Remaining 04:18:01" and "WizIQ".

The "insert files from library" tool

The "insert external files" tool

The user may outsource a variety of files

An iconic presentation of the teaching methodology

The screenshot shows a web browser window titled "Μαθηματικά - Teacher - Mozilla Firefox" with the URL <https://live.wiziq.com/liveext/LoginToSession.aspx?SessionCode=azbxoIJQikgLw66Qm3gsTQ%3d%3d>. The interface includes a top navigation bar with options like "Screen sharing", "Poll", "Breakout room", and "Back to Classic View". Below this is a toolbar with various icons, including one for "insert multimedia" (a camera icon). The main content area is a whiteboard with the title "ΙΔΙΟΤΗΤΕΣ ΕΣΩΤΕΡΙΚΟΥ ΓΙΝΟΜΕΝΟΥ" and the text "Αντιμεταθετική ιδιότητα". A hand-drawn diagram shows a circle with a vertical line through its center. Below the text is the vector equation $\vec{a} \cdot \vec{b} = \vec{b} \cdot \vec{a}$. A blue callout box points to the "insert multimedia" icon in the toolbar, containing the text "The 'insert multimedia' tool". Another blue callout box is positioned below it, containing the text "Multimedia is cross-referenced as a special category of input files". The interface also shows a "Live video stream" section on the right, a "Chat (All)" section, and a "Time Remaining 04:18:01" indicator at the bottom right.



Student Assignments

Students are assigned work or study that is required to be done at home.

After completion, assignments are:

- **Scanned and submitted**

Especially if they contain mathematic formulas, they are scanned or photographed by a smartphone or tablet and submitted to the virtual learning environment

- **E-Tests**

In certain cases, the interaction has the form of hypertext communication. Assignments and electronic tests may be used for submitting multiple choice, multiple format exams or typed text exercises.



End of the 5th Lecture

Sources :

- S. Love, Understanding Mobile Human-Computer Interaction Elsevier – Butterworth – Heinemann, 2005
- D. Akoumianakis, COMPUTER-USER INTERFACE – a modern approach Kleidarithmos Publications , Athens 2006 (in Greek)
- N. Avouris, Ch. Katsanos, N. Tselios, K. Moustakas, Introduction to Human Computer Interaction www.kallipos.gr, Athens 2015 (in Greek)
- B. Schneiderman & C. Plaisant, Designing the User Interface: Strategies for Effective Human-Computer Interaction 5th Edition, Pearson, 2009
- J. Preece, Y. Rogers, H. Sharp, INTERACTION DESIGN – beyond Human-Computer Interaction 4th Edition, John Wiley & Sons, 2015



Recording sessions

In most cases, sessions are not recorded. For standardization purposes, however:

- **Student behaviour and competences**

Student performance and attitude may be examined closely and cross – checked with examination results, giving a holistic approach on competences

- **E-Tests**

In certain cases, the interaction has the form of hypertext communication. Assignments and electronic tests may be used for submitting multiple choice, multiple format exams or typed text exercises.



Reference note

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Lecture 5: “Interactive Learning Platforms: The WizIQ paradigm”.

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