Questions Sharing and Interactive Assignments
An Online System for Development, Management and Sharing Knowledge

University of Haifa, Israel - The Library | The Center for Internet Research

http://qsia.haifa.ac.il

Summer 2014
What is QSIA?

• A pedagogical online system for Knowledge Management, which enables learning by Q&A:
  • Exercises and online training
  • Real time exams
  • Online surveys and feedback forms
  • Assignments without time or location limits

• System developed from 2001 at the Center for Internet Research at the University of Haifa

• Since 2007 its maintenance and development are anchored at the University’s library
Uses of QSIA

QSIA is aimed at:
• The single student
• Entire classes and learning communities
• Teachers
• Groups of teachers
• Departments
• Research and teaching Consortia

For:
• Learning
• Knowledge collection
• Corpora creation
• Improvement of study materials
• Knowledge management
Knowledge Sharing in QSIA

• QSIA encourages knowledge sharing among instructors and researchers by using a wide, interdisciplinary, open collective database
  • All knowledge items are saved as atomic entities and enable reuse in different contexts
  • Assignments can be created or checked by groups of instructors
• QSIA is being used by groups of instructors from many disciplines: medicine, science, foreign languages, business management...
• QSIA’s database includes thousands of knowledge items and hundreds of assignments
Knowledge Items in QSIA

- QSIA is based on “knowledge items” that are imported into the system or created individually or as a communal work product.
- Items’ creators can be teachers, coordinators or students.
- The system has many types of items:
  - Open item / open question
  - Multiple choice item
  - True/False item
  - Data check
  - Conditional item
  - “Fill in the blanks”
  - Likert Scale
  - Text similarity
  - Matrix item
  - Text/URL item

All knowledge items might be textual or multimedia-based: images, photos, animations, simulations, video clips or audio, and all have an aspect of time: measurement, limitation and indication.
Knowledge Items in QSIA

- Each item includes many attributes and features, such as comments and information fields in rich text format, images, clips, links, math expressions...
- Can be connected to information sources - textbooks, websites...
- Each item can be analyzed based on students’ ranking in their assignments and its usage history in the system.
Assignments in QSIA

- Assignment is an online activity which may take the form of: homework, learning tasks, exam, survey and any other form of use - based on the instructor’s pedagogical aims
- Assignment is built from knowledge items for specific learning groups and for specific time periods
- The assignment has great flexibility in choosing and defining its attributes and options
- Items in an assignment and their grading are organized and displayed in many ways
- QSIA enables diverse options of organization: ordered or random for each student’s assignment:
  - Choose random items from specific repositories
  - Randomly order items in the assignment
  - Randomly order choices in multiple-choice items
Assignments in QSIA

- At the end of any activity (exam, homework, etc.) the students can reflect on their answers and change them before submission.
- Grading can be automatic, including personal adjustments, verbal comments, etc.
- Assignment can be printed and used in a traditional form.
- Security of assignment:
  - During execution of an assignment, QSIA can alert about number of connections from one computer or number of users from the same computer.
  - Instructor can hold the right answers or grades until the end of the assignment.
  - Repeat-submission can be blocked in advance.
Execution of Assignments in QSIA

- In real time or after assignment execution the instructor can
  - Observe and track her students’ performance
  - Modify the items’ grading
  - Export detailed report in various formats
Instructors’ uses of QSIA

- Insert knowledge items to the database
- Use search engine in personal / shared database
- Organize personal information in sharable folders
- Create assignments and tasks from items in database
- Define learning groups
- Real time control over the execution of assignments and performances
- Improve knowledge items collection by getting students’ feedback
- Creating knowledge communities by sharing with colleagues and students
Students’ uses of QSIA

- After login, students see their learning groups and their active assignments
  - They may practice using the course material, with the instructor’s permission
  - They execute assignments and submit them at a specific time
- Students get numeric or verbal feedback, automatic or manual, at the end of the assignment
  - They can view their online “results sheet” at all times
- Students may create, modify or rank knowledge items
### Personal database: Assignments

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<th>Last used</th>
<th>Functions</th>
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### Personal database: knowledge Items

**Pick and click**

- **Copy** to folder **Knowledge items**
- **Move** to folder **Knowledge items**
- **Delete**

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<th>Updated</th>
<th>Last used</th>
<th>Functions</th>
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<td>Following a fall down a flight of stairs at work,</td>
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### Example Item: multiple choice question

Breast biopsy. The right panel is a positive immunoperoxidase stain for a tumor marker. **What is the diagnosis?**

- [x] Cartilage hamartoma
- [x] Squamous cell carcinoma
- [x] Large cell undifferentiated carcinoma
- [x] Oat cell/small cell carcinoma
- **✓** Adenocarcinoma

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Correct answer Grade 100

Try again
Personal database: knowledge Items

Example Item: multiple choice question

In 1921, Pearl Buck (1892-1973) gave birth to a daughter (blond hair and blue eyes), Carol, who became severely retarded and was eventually institutionalized at the Vineland Training School in New Jersey. To help pay for her daughter’s care, Buck wrote *The Good Earth* in 1931, and then other novels and biographies about her life in China, for which she was awarded the Nobel and Pulitzer Prizes. Pearl Buck in her book *The Child Who Never Grew* described Carol: “I remember when she was only 3 months old she lay in her basket on the sun deck of a ship. I had taken her there for the morning air. The people who promenaded on deck often stopped to look at her, and my pride grew as they spoke of her unusual beauty and of the intelligent look of her deep, blue eyes. I do not know at what moment the growth of her intelligence stopped, nor to this day why it did.” Pearl Buck in later years (1960s) remembered that Carol, as a child, had an unusual odor. Should Carol be born now, laboratory studies would demonstrate that she suffered from an inborn error disease of amino acid metabolism. **To prevent mental retardation, Carol should be placed on a special diet that lacks which of the following essential amino acids?**

**Historical note:** At the time of Carol’s birth, it had been discovered that Pearl Buck had a uterine tumor, for which she underwent a hysterectomy. Unable to have more biological children, Pearl Buck adopted several children, the first of whom was Janice. Carol’s disability did not appear to be a major contributor to Buck’s decision to adopt her later children, especially those who were orphaned Asian-American children.

- Tyrosine (Tyrosinemia, type II also known as “Oculocutaneous tyrosinemia”)
- Tryptophan (hypertryptophanemia)
- Phenylalanine (phenylketonuria)
- Proline (hyperprolinemia)
- Methionine (hypermethioninemia)
- Isoeucine (maple syrup disease)

The “musky odor” of Carol’s sweat and urine was due to phenylacetate, one of the ketones produced. Phenylketonuria affected children who are detected and treated are less likely to develop neurological problems or have seizures and mental retardation, though such clinical disorders are still possible.

Correct answer Grade 100

Try again
A 4-year-old boy falls on a rough sooted and rusty surface of a metal tank (image below). The wound is cleaned and covered with sterile gauze. **Which of the following is the initial event in the healing process of that wound?**

*Note: the pattern may give some indication of the nature of the surface and the direction of the force.*

- Congested granulation tissue
- Formation of a fibrin clot
- Differentiation and migration of myofibroblasts
- Macrophage-mediated phagocytosis of cellular debris
- Deposition of proteoglycans and collagen
- Accumulation of acute inflammatory cells

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**Which of the following neoplasms is most likely to be correlated with the historical review presented?**

- Chronic myeloid leukemia
- Retinoblastoma
- Cerebral astrocytoma
- Teratoma
- Melanoma

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**VIRCHOW** first described these tumors calling them gliomas in the belief that they arose from glial cells of the retina. In 1891 Flexner reported a single case first describing the rosettes which are sometimes present. In 1897 Wintersteiner described the rosettes in a large series. Both authors advanced the opinion that the rosettes represented an attempt to form rods and cones. Later Verhoeff suggested as a designation of the entire group to indicate that these tumors are composed of embryonal and retinal cells. This term was officially adopted by the American Ophthalmological Society in 1926.
Sharing Knowledge in QSIA

- Each item, bundle of items or assignment is
  - Part of a personal or shared database
  - Tagged to disciplines and themes
  - Can be shared at different levels:
    - Read only
    - Copy and use
    - Modify the item itself and use it

- Shared at different accessibility levels: user only, all groups, certain user groups

- This mechanism affords creation of assets - by the community and for the community

- Shared database accessible to faculty only
Benefits of QSIA

- Can be used from anywhere
  - No installation needed
  - Accessible from PCs, desktops, laptops, smartphones, tablets...
- Simple user management
  - Connect to your Moodle course site with QSIA
- Multi-lingual system in all its interfaces & contents
- QSIA affords flexibility in all its options
Benefits of QSIA

- **Real time control** over assignment execution by different criteria - at item and student level
- Students get **immediate results**
  - Learn from mistakes via instructors feedback
  - Correct their answers (if allowed)
  - They may write feedback about each item
- All grades and feedbacks are saved for analytics and research use in the future
Student review of her answer

1. Mikhail Sergeyevich Gorbachev (born 2 March 1931) was the sixth General Secretary of the Communist Party of the Soviet Union, serving from 1985 until 1991, and the last head of state of the USSR, serving from 1988 until its collapse in 1991. His marks were frequently discussed in the newspapers.

Gorbachev's irregular marks (head and forehead) are an example of a(n):

- choristoma
- cyst
- metaplasia
- benign tumor. It is a hemangioma, often called a port-wine stain, found on the face or neck.
- dysplasia
- malignant tumor
QSIA and your community

- **Communal creating** of knowledge items and assignments
  - Sharing knowledge between colleagues
  - Knowledge management
  - Developing organizational “memory”
- QSIA helps faculty **create a database** that defines and maps their discipline
- **Quality assurance** of the database by analyzing the ranking and feedback of students and colleagues
QSIA and your community

- Access to personal and communal information from anywhere
- All users use a **wide knowledge database** created by their colleagues from different disciplines, while maintaining private collections, privacy and autonomy
- Teaching improvement - organize the faculty’s accumulated experience
- Teams can share knowledge items and reuse them while **implementing collective work processes**
QSIA - Backstage

- Stable and secured servers on University of Haifa’s cloud
- Maintenance by the University of Haifa Library
- Personal support and on-demand development
QSIA - Some of our Clients

- Tel Aviv University - Medicine
- University of Haifa
  - Faculty of Management
  - Faculty of Humanities
  - Faculty of Social Sciences
- Technion - Children Medicine, MBA
- Ben-Gurion University of the Negev
- Chemistry teaching in Nesher’s high schools
- Learning Turkish as a foreign language
- The Open University of Israel - Business, History...
- “Sapir” Academic College
- “Carmel” Academic Center
- Intel, Bank Hapoalim - Managers Training
- The Hebrew Reali School in Haifa
- IDF Junior Command Preparatory School in Haifa
- Leo Baeck Education Center
QSIA - Research


QSIA - Research

- Bajpai, M. B. Information and Knowledge Sharing through Intranet.
- Dan-Gur, Y., Hammel, I., & Rafaeli, S. QSIA: Online Knowledge Items In the Service of Learning Communities.
- Barak, M., Dan-Gur, Y., & Toch, E. QSIA–Online Collaborative Learning and Management of Knowledge Items.
QSIA - Research

Questions Sharing and Interactive Assignments
An Online System for Development, Management and Sharing Knowledge

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Thank you!

http://qsia.haifa.ac.il

qsia@univ.haifa.ac.il