Micro and Interactive Learning: Latest Tools and Techniques

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The Association of Accountants and Financial Professionals in Business

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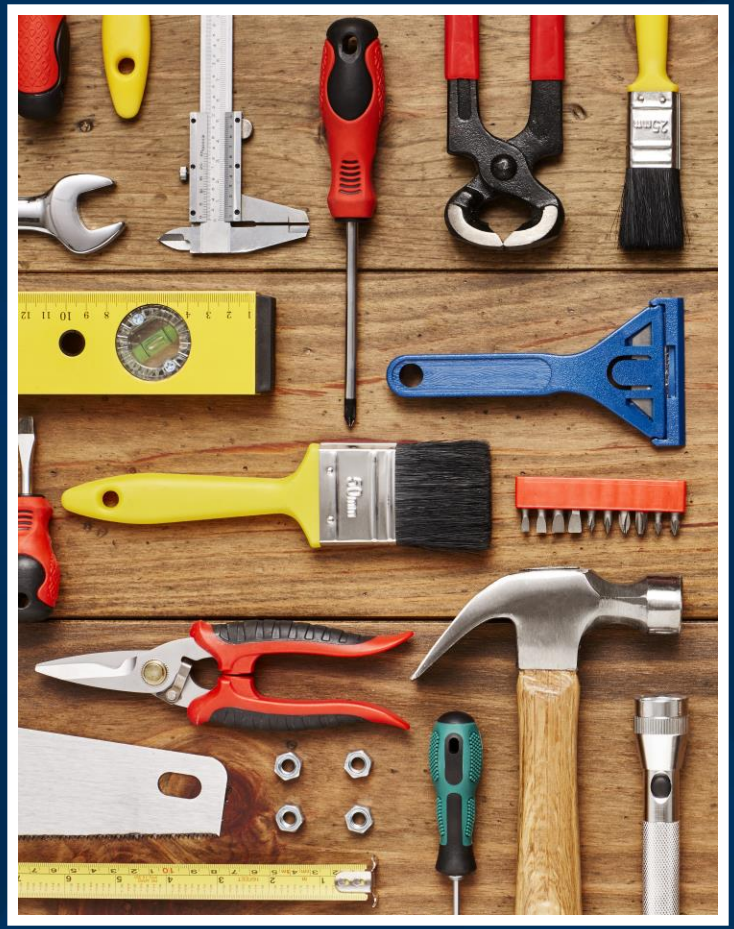
Agenda

1. Introduction
2. Background on Micro and Interactive Learning
3. H5P Activities (Demonstrations and Creation Options)
4. If Time Permits: Interactivity Add-in Options for Excel

   (Otherwise, detail is available in the Appendix)
5. Conclusion



Background on Micro and Interactive Learning

Microlearning is a focused teaching technique.

The technique is defined by a focus on a single objective or topic during a very short time such as 10 minutes or less.[4]

While the technique can be an aspect of a pre-determined learning plan, a “bank” of topics and activities can also be available to respond, on-demand, to the needs of learners.

This strategy of *just-in-time learning* is prevalent in workplace learning and development.[8]

Microlearning has risen in popularity in recent years due to its expected benefits for learners.

The benefits of microlearning, per the literature, include:

1. Improved retention of content by learners (by reducing the cognitive load on working memory);
2. Enhanced motivation and/or engagement (due to the shorter time investment required by learners); and
3. Better fit with the information-seeking behaviors resulting from the prevalence of internet search engines and social media.[2, 4, 8]

Microlearning, aka nano learning, is used for some continuing professional education (CPE) courses.

The ICMA and the NASBA CPE standards permit 10-minute increments, although state accountancy regulations may differ around acceptance.

Nano CPE courses, per standards, are:

1. Delivered electronically without a live instructor (cannot be paper-based);
2. Individual, not group, learning options;
3. Focused on a single objective;
4. Not a substitute for comprehensive programs around complex issues; and
5. Validated by a two-question assessment that requires a score of 100% to pass.

One of the free CPE courses for IMA members.

IMA Excel 365: Tips in Ten

15+ Nano-courses (10 minutes each) demonstrating new features in Excel 365.

Program led by Bill Jelen, known as Mr. Excel.

Links: IMA's Continuing Professional Education (CPE) Policies and NASBA's Statement on Standards for CPE Programs (see Standard 10.)

Interactive learning is about learner engagement.

Interactive learning is not just about working hands-on with content.

The concept has three aspects:

1. Learner-to-instructor;
2. Learner-to-learner; and
3. Learner-to-content.[5]

Effective design for microlearning considers the format and means of delivery as well as content.

Microlearning can be applied in the classroom and online.

In technology-based settings, the format and delivery of content via computer and/or smartphone benefits from software and templates created with such mediums in mind.[3]

Relevant software enables no-code design for instructors, leaving more time to focus on and develop the content.

Poll Question 1:

Which option best describes your current understanding and usage of microlearning?

a) I am not familiar with the concept or its usage.

b) I have limited knowledge of the concept and/or how to apply it when developing learning activities.

c) I have basic knowledge of the concept and how to apply it when developing learning activities.

d) I have sufficient knowledge of the concept and I regularly apply it when developing learning activities.

Poll Question 1 Results: (Placeholder)

H5P Activities and Software Tools

What is H5P?

H5P, short for HTML-5-Package, is open-source software that helps create interactive learning activities.

H5P is over 10 years old; integrations with LMS providers are more recent.

H5P also runs on some web platforms and there are paid consultants that can assist with technology support.

It also available with Pressbooks.

H5P Integrations

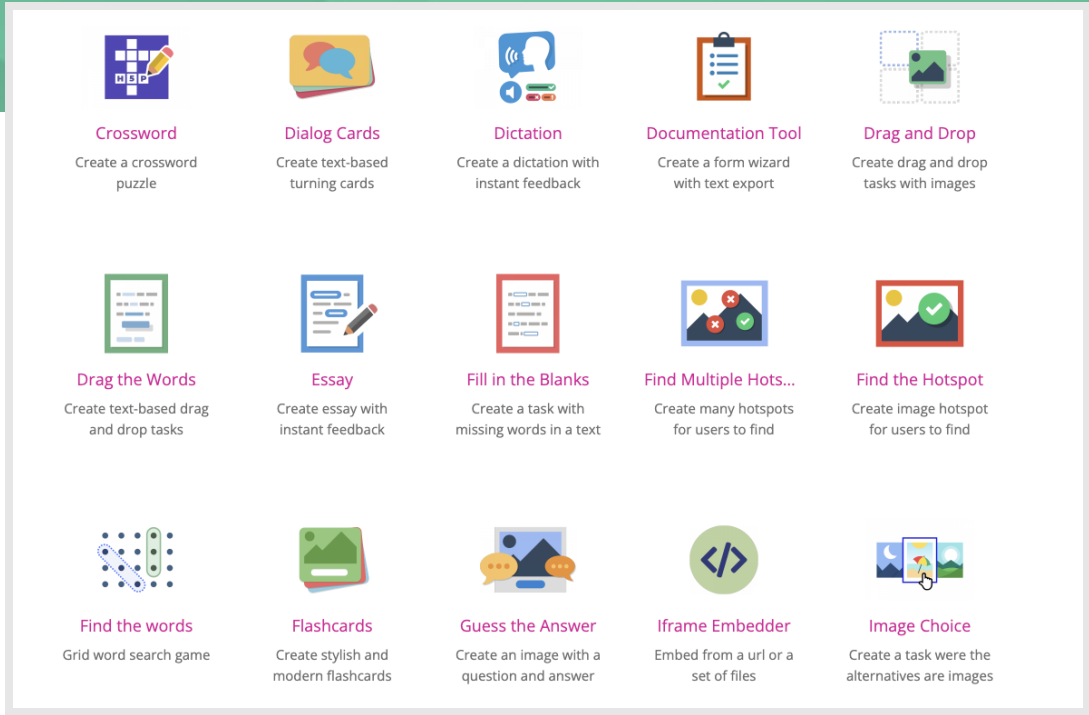
Source: H5P.org; MIT open licensing

Today's presentation covers 3 no cost methods for creating, using, and sharing H5P activities.

H5P Option 1: H5P.org and Embedded Links

Multiple formats to make content interactive such as:

- Accordion
- Drag and Drop
- Drag the words
- Flashcards
- Image Hotspots
- Multiple Choice
- Presentation



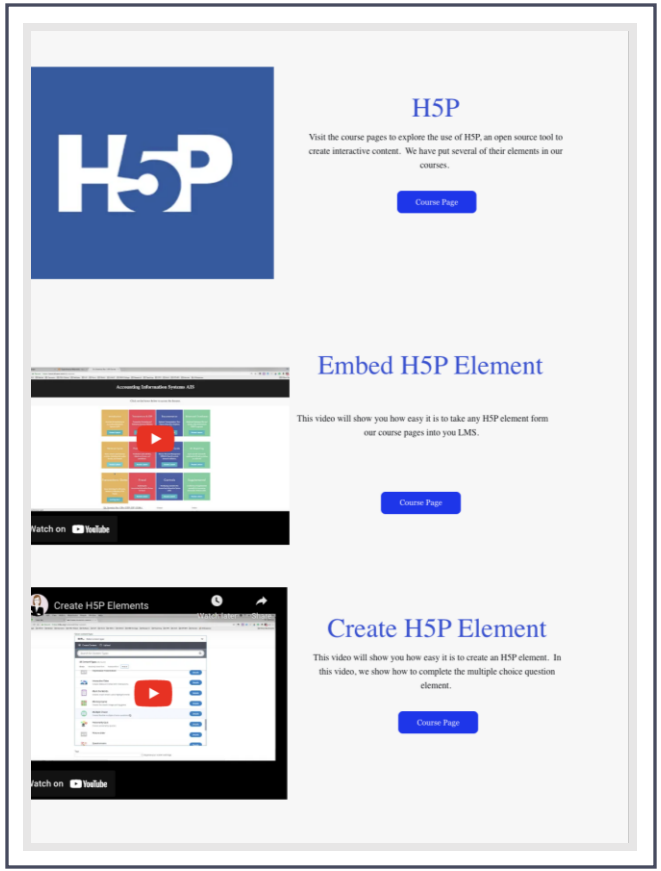
https://h5p.org/

Embed H5P Elements

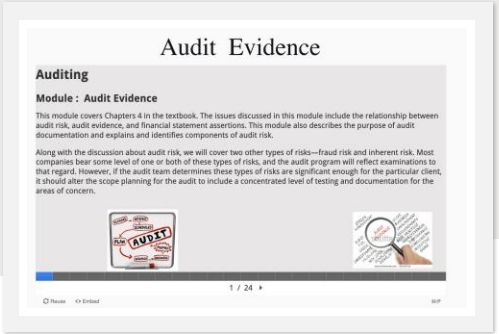
You can provide to your audience the ability to embed your H5P elements.

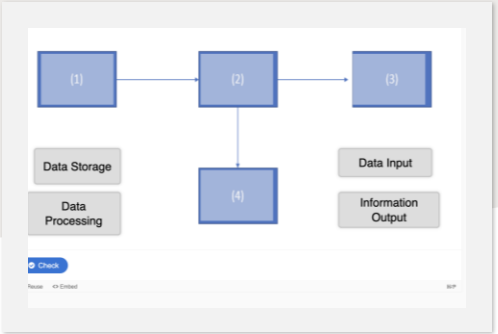
We share all our elements via:

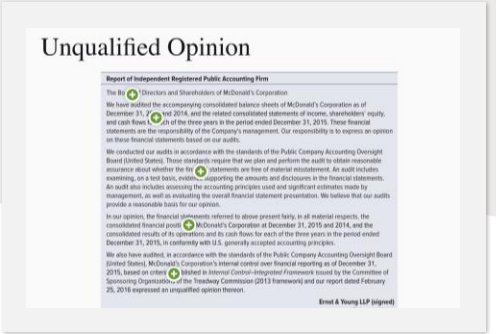
- www.AccountingTeachingTools.com
- www.drvpaz.com



Live Demo







Let’s show you the elements we created and that are accessible via Creative Commons License on:

www.drvpaz.com

Poll Question 2:

Which option best describes your use of grade points or other incentives to encourage completion of independent, formative learning activities?

a) I do not use incentives for independent, formative learning activities.

b) I use minimal incentives (less than 20% of grade).

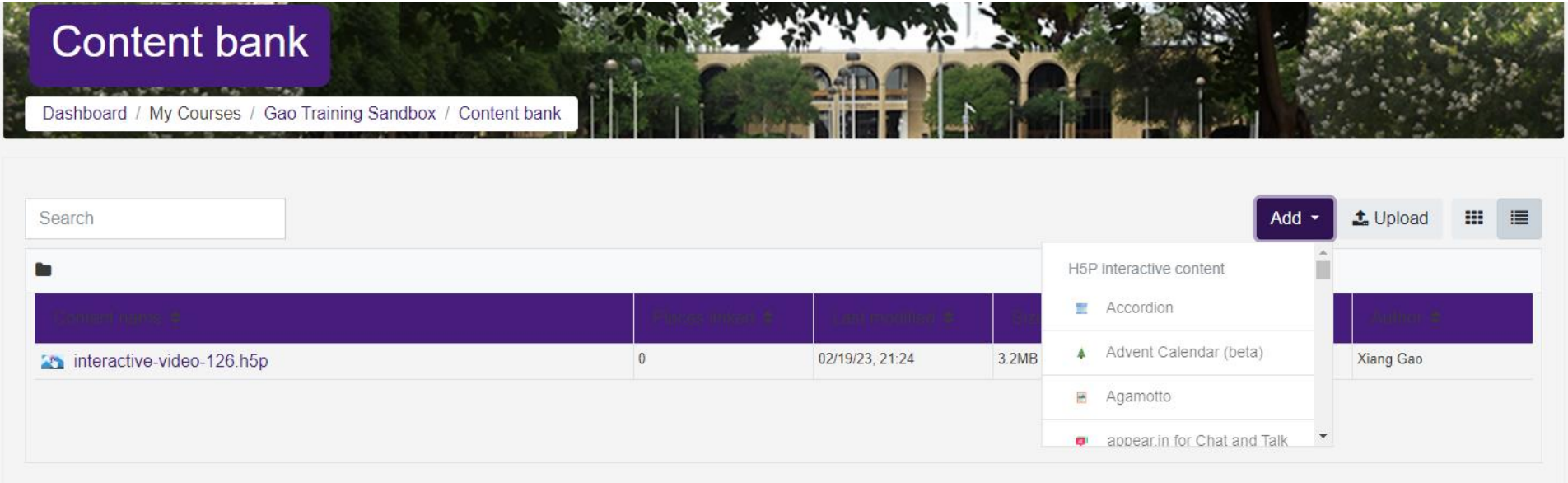
c) I use moderate incentives (20 - 40% of grade).

d) I use significant incentives (greater than 40% of grade); assessments such as exams are balanced or have lower weightings in my course grades.

e) My use of incentives varies by factors such as content or level; for example, introductory vs. advanced courses or undergraduate vs. graduate level.

Poll Question 2 Results: (Placeholder)

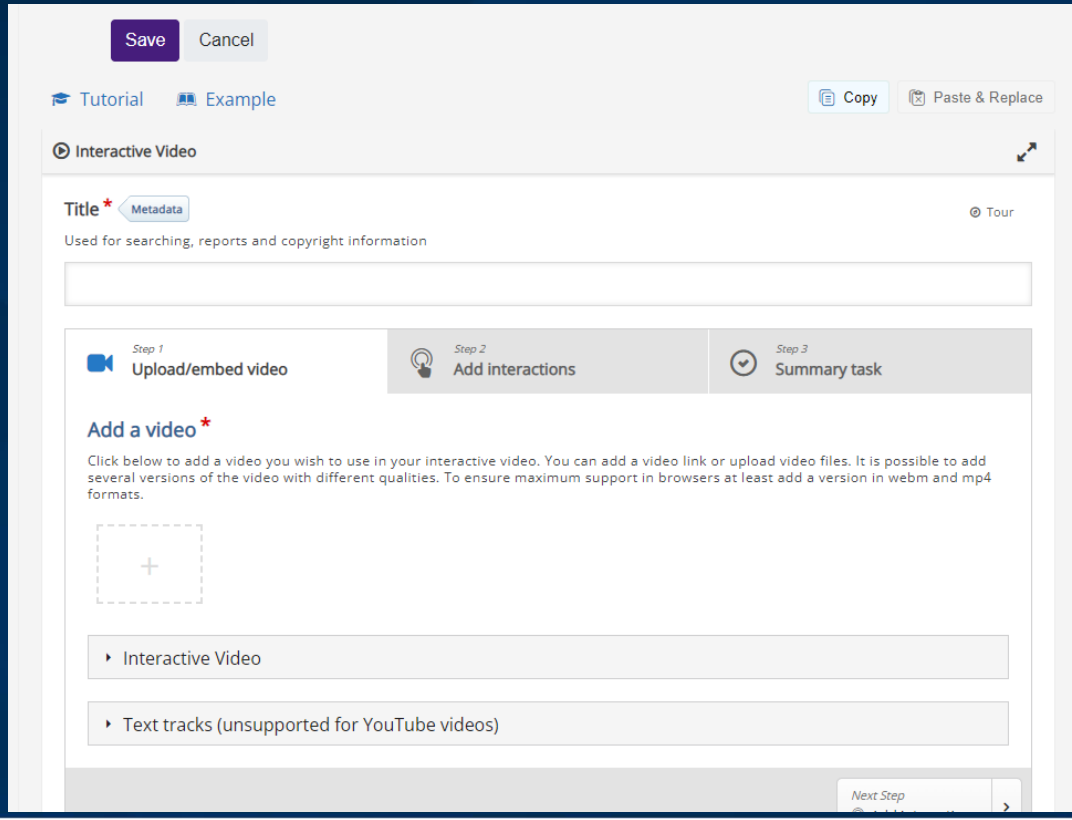
H5P Option 2: LMS-Provided Tools



Example of H5P on Moodle

Create H5P on Moodle

- Course Presentation
- Drag and Drop
- Drag the Words
- Flashcards
- Guess the answer
- Interactive book
- Interactive video
- Multiple Choice
- Question Set
- Questionnaire
- Summary
- Timeline
- True/False Question
- Virtual Tour

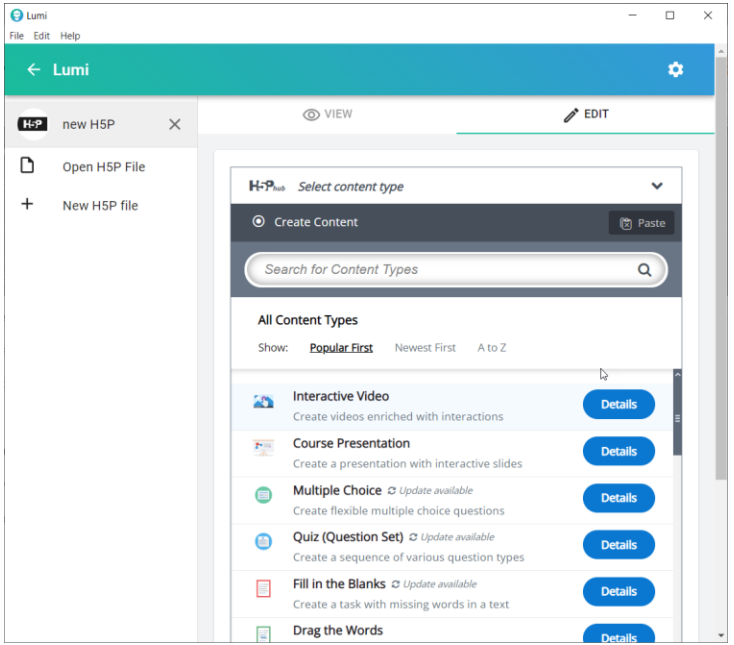


H5P Option 3: Lumi Educational Software

There is a no-cost software option for creating, editing, and saving H5P files outside of an LMS (and not online at H5P.org).

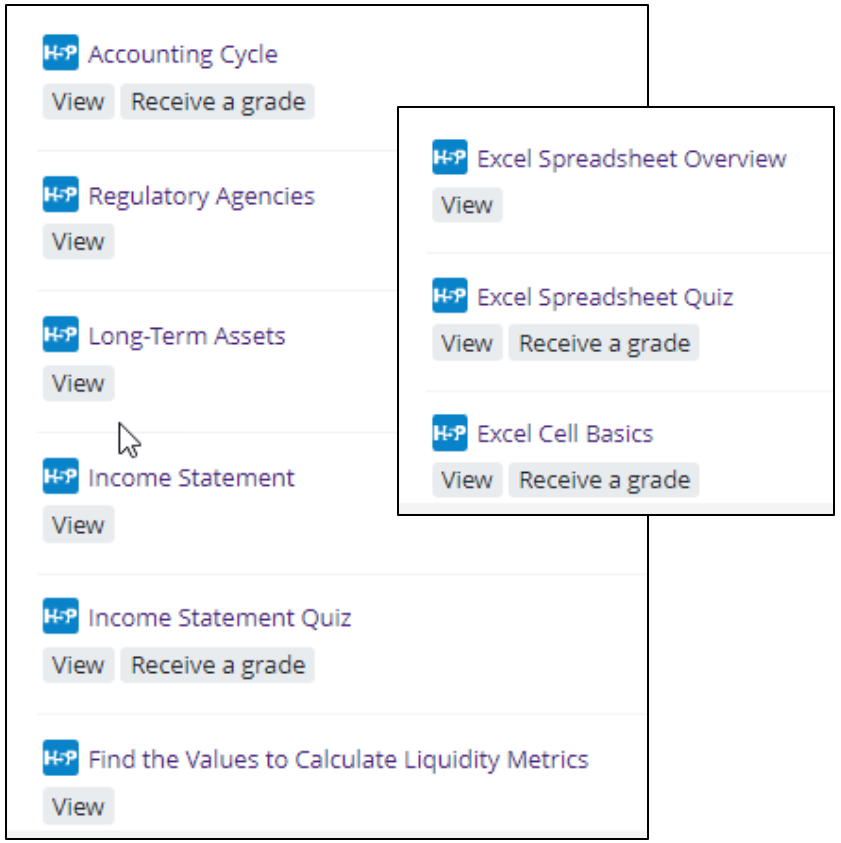
The vendor is Lumi (specifically the company's education division) and there are desktop and online software options. ***(Links in Appendix)***

Today's demonstration is the desktop version.



Before the example of working with an H5P file in Lumi software, will demonstrate several types of activities used for recent accounting courses (via Moodle).

All examples are available in Zip file for attendees or other faculty requesters.



The zip file for attendees includes an H5P activity type summary (in Excel) with links to other examples.

The screenshot below shows the Excel summary file layout with a listing of the current H5P activity names, a brief description (from the H5P.org website), and any accounting-specific examples provided by today's presenters plus points tracking experience in Moodle. The final column includes links to the other free examples available on the H5P.org website that can be downloaded and used as a starting example (although no examples are accounting-specific).

H5P Content Name	Description	Accounting Examples Provid	Points Tracking	H5P.org Examples
Advent Calendar (beta)	Create an advent calendar	n/a		Advent Calendar (beta)
Agamotto	Create a sequence of images that gradually change	Excel Spreadsheet Overview	No (Moodle)	Agamotto

Poll Question 3:

Which option best describes your familiarity with H5P activities and software tools?

a) I am not familiar with H5P activities or software development tools.

b) I have seen or completed an H5P activity but have not used any for teaching and have never developed any.

c) I have used H5P activities for teaching but did not develop them myself using software tools.

d) I have used H5P activities for teaching and have developed, or modified, them using software tools.

Poll Question 3 Results: (Placeholder)

Since H5P is relatively new, limited research exists related to effective academic applications.

A search on Google Scholar yields some research studies. However, most are very recent and research in accounting-specific contexts is almost non-existent.

Therefore, the next few slides reflect some learnings or watchouts from our presentation team that have been picked up as we created H5P activities or used them in a course.

There may be LMS-related quirks to be aware of when adding H5P activities to a learning plan.

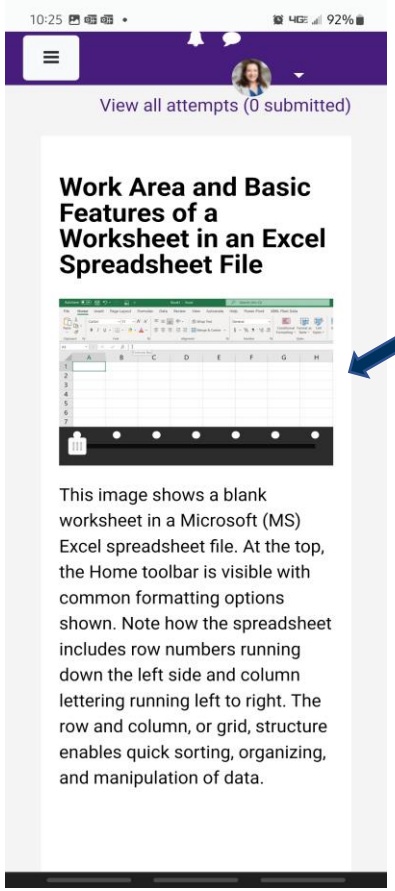
As previously mentioned, not all H5P activities actually track and post points even though the LMS set-up options offer this capability (e.g., Moodle).

There also may not be open and close dates at the activity level (e.g., Moodle). Workarounds may be available such as entering zero grades for an activity after the desired close date for students who did not complete the activity.

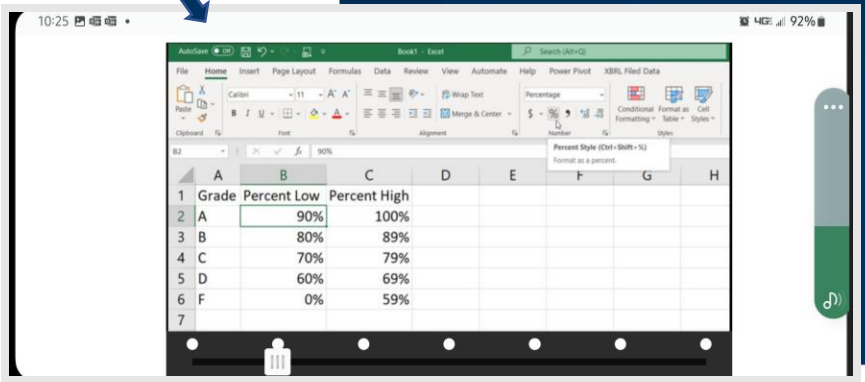
Like most activities in an LMS, H5P usage patterns can be tracked for future adjustments.

Stats from an introductory financial accounting course (Fall 2022, face-to-face, 15-week course with H5P activities available in LMS for some but not all weeks).

- 90% of students accessed each H5P activity between 1 and 3 times.
  - 46%, on average, accessed only 1 time; range for 1 time was 27% to 68%.
- 10% of students accessed each H5P activity from 4 to 7 times.
  - Only 3% of students were at the high-end with 6-7 times per activity.

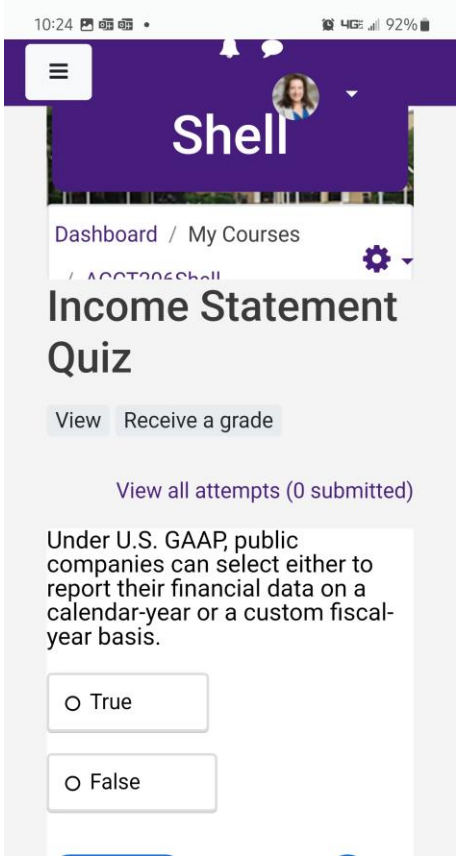


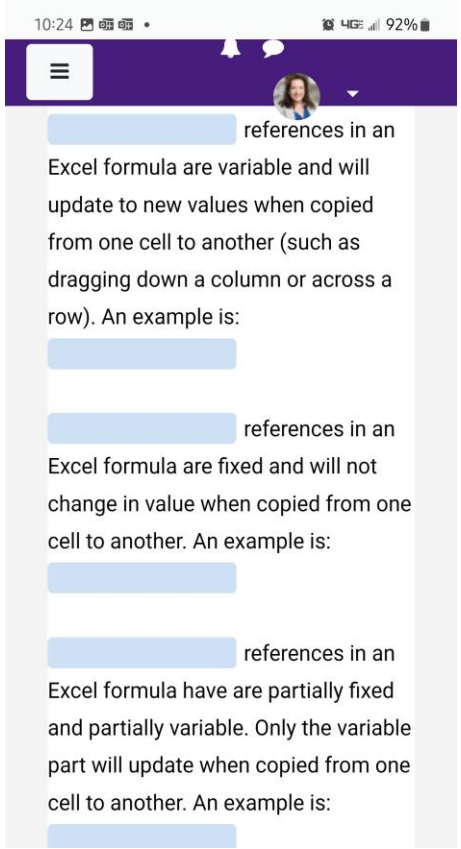
In this example, the Excel table is very small in portrait layout but visible in landscape view.



Ease of smartphone usage varies by H5P activity.

Suggest that H5P creators test all items via smartphone if it is a concern that many students will lack desktop or laptop access.

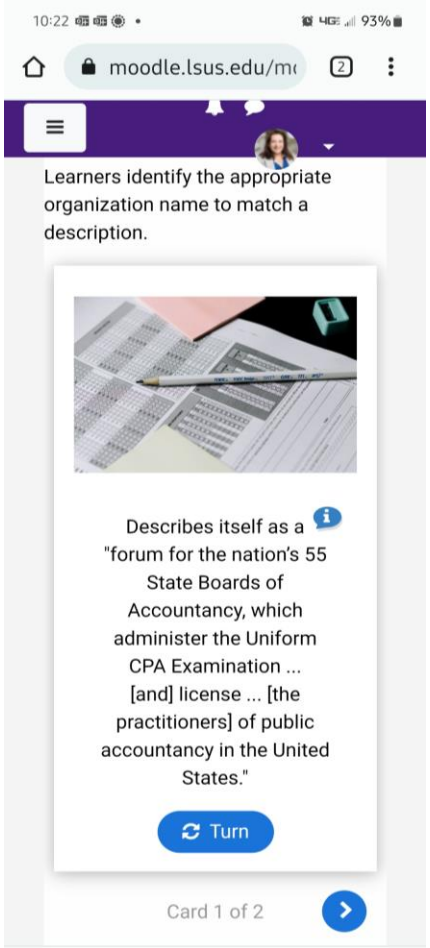




Ease of use for activities such as quizzes varies by question length.

At left is a simple true/false question. It is fully viewable on a smartphone screen.

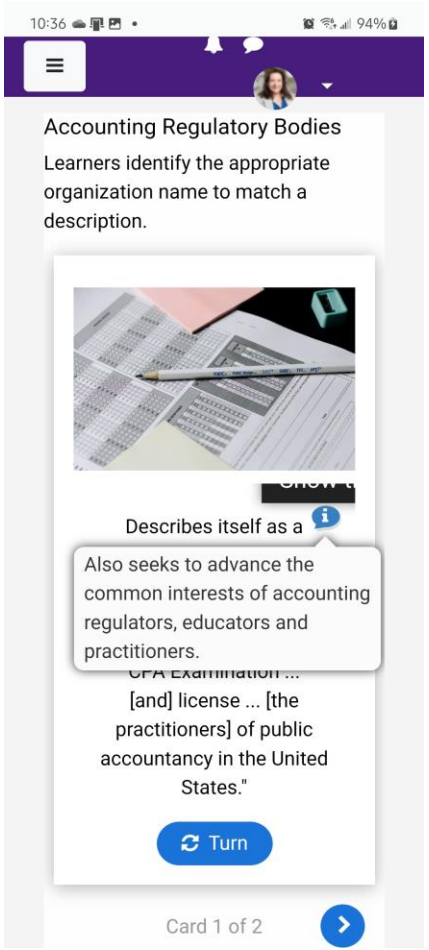
At right is a drag-and-drop type question with multiple parts. Scrolling is required to see the full questions and the responses to select and drag.



Activities such as flashcards work well on a smartphone screen.

The text descriptions, action buttons, and images/icons are easily viewable.

On the right, the screen shot shows the pop-up box with additional information.



Poll Question 4:

Which option best describes your comfort level and expectations for using H5P activities and/or software tools at the end of this session?

a) I will not use H5P activities; they are not a match to my teaching needs.

b) I would like to use H5P activities, but I am not comfortable creating or modifying them with software tools.

c) I will probably use H5P activities, and I am comfortable creating or modifying them with software.

d) I will definitely use H5P activities, and I am comfortable creating or modifying them with software.

Poll Question 4 Results: (Placeholder)

Conclusion

Learning Objectives Revisited

1. Identify tools and techniques for micro and interactive learning.
2. Recognize appropriate accounting topics and tools for use with micro and interactive learning techniques.
3. Understand and differentiate the features of H5P activities to match available options with targeted learning outcomes.
4. Create new or modify existing online learning activities using H5P software and/or LMS tools.

Takeaways (Plus Links and More in Appendix)

- Interactive tools to make lectures and learning more engaging
- The sky's the limit
- Release your creativity
- Multiple ways to integrate
  - Stand alone
  - In LMS
  - Via another website

Let's get practicing!

> I see no reason why there still are large lectures in universities throughout the world.
>
> When people gather, they should be interactive, problem-solving, and experimenting; not passively listening.

Sal Khan

Educator and Founder of Khan Academy

Questions and Answers

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Thank you!

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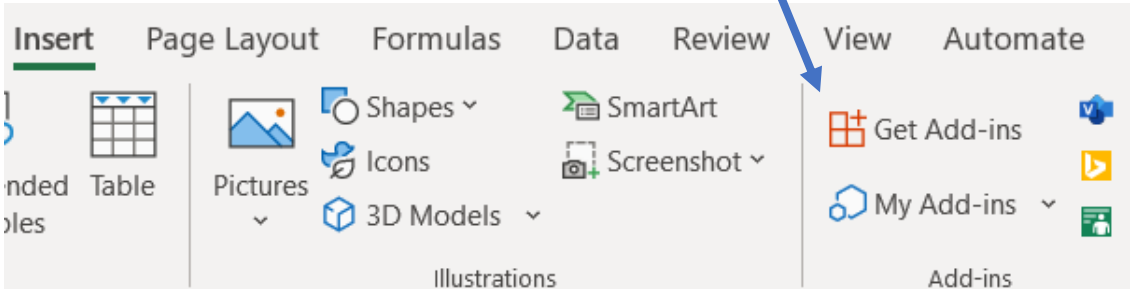
APPENDIX

Reference list plus vendor information and links to access the software and other resources covered during the presentation.

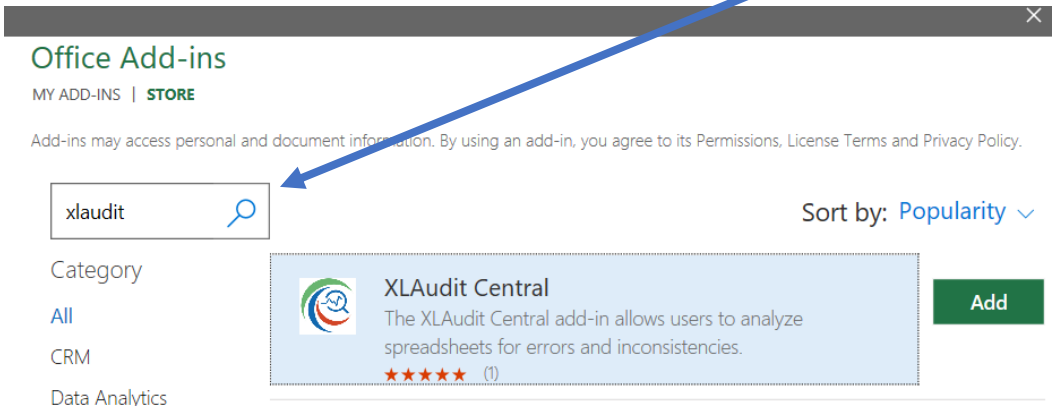
Interactivity with Excel (Add-In Options)

Excel Add-in: XLAudit Central (by CIMCON Software LLC)

Add from Microsoft AppSource or the **Get Add-ins** option on Excel's Insert menu



When the Office Add-ins box pops up, search by name



XLAudit Central - Free Features

- Analysis of formulas and cells, structure, macros/VBA, as well as inputs, outputs, and calculations
- Visually compare two spreadsheets

Excel Spreadsheet Audit

Help students audit their own work

XLAudit Central

When enabled, is found at far-right on the Home menu.

Open an Excel file, then click the XLAudit Central option to:

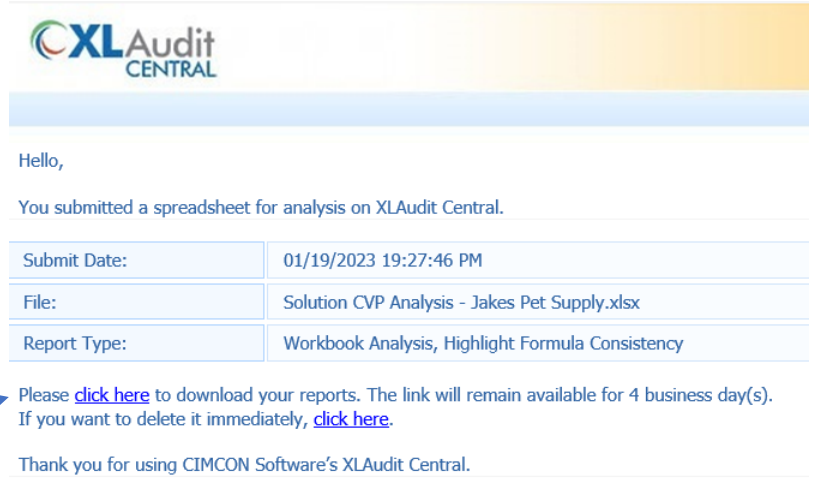
1) Choose reports,

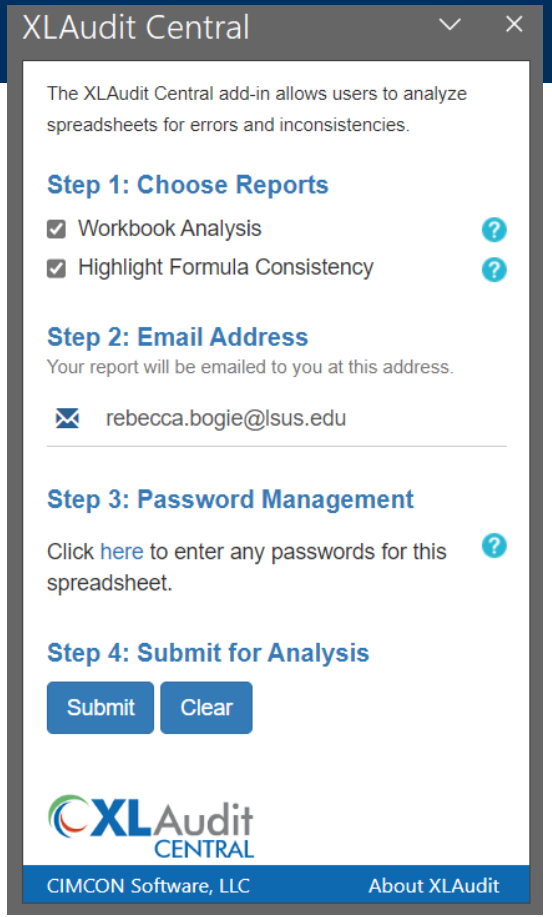
2) Provide a return email address, and

3) Supply password(s), if necessary, then

4) Submit online.

Get back reports (often in minutes).





XLAudit Central

Analyzed On:
01/19/2023 19:27:54 PM
Analyzed By:
rbogie@outlook.com
False Positive Filter:
Off

Author	Karen Braun
Create Date	3/12/2016 5:41:20 PM
Last Modified	1/19/2023 7:27:53 PM
Last Modified By	Rebecca Bogie
Workbook Protection	None

Analyzed Sheet	Password Protected	Visibility
Business & Directions	No	Visible
Original Assumptions	No	Visible
Supplier Cost Increase	No	Visible
New Sales Mix	No	Visible
Alternative Contract	No	Visible
Advising client	No	Visible
Grading Rubric	No	Visible

Reports returned include:

- Summary of file and author info.
- Overview of various aspects of cells, formulas, sheets, visibility, etc.
- Detail sheet for each aspect to review for errors and make notes.

Description	Count
Cells with External Links	0
Formula Cells	283
Formulas with Absolute Cell	66
Distinct Formulas	168
Nested If Formulas	0
Unique Formulas	117
Complex Formulas	0
Cell Validations	0
Numbers stored as Text	0
Unlocked Cells (Formula)	0
Blank Cell References	2
Blank Cells Referenced in Formulas	44
Formula Errors	0
Formulas Omitting Adjacent Cells	0
Formulas with Circular or Volatile	0
Formulas with Constants	22
Hidden Rows	0
Hidden Columns	0
Hidden Sheets	0
Overlaid Shapes Lookout	0
Protection	0
Query Cells	0
Range Names	0

Formulas with Absolute Cell References

Sheet Name	Cell Address	Formula	Value	Add User Notes Her
Original Assumptions	F6	=C$26/F3	250.00	
Original Assumptions	F10	=SUM(C$26,C$28)/F3	1,583.33	
Original Assumptions	F18	=C$26/F15	125.00	

XLAudit Central

	Product #1	Product #2	Total
Revenue	$ 2,000.00	$ 3,000.00	$ 5,000.00
Variable Costs	$ 800.00	$ 1,800.00	$ 2,600.00
Contribution Margin	**$ 1,200.00**	**$ 1,200.00**	**$ 2,400.00**
Fixed Costs			$ 1,500.00
Operating Income			**$ 900.00**
WACM %	60%	40%	**48%**

Returned file has color-coding for formula consistency checks.

This screen clipping is from the original file submitted.

The returned version uses multiple colors to indicate (or not) formula consistency.

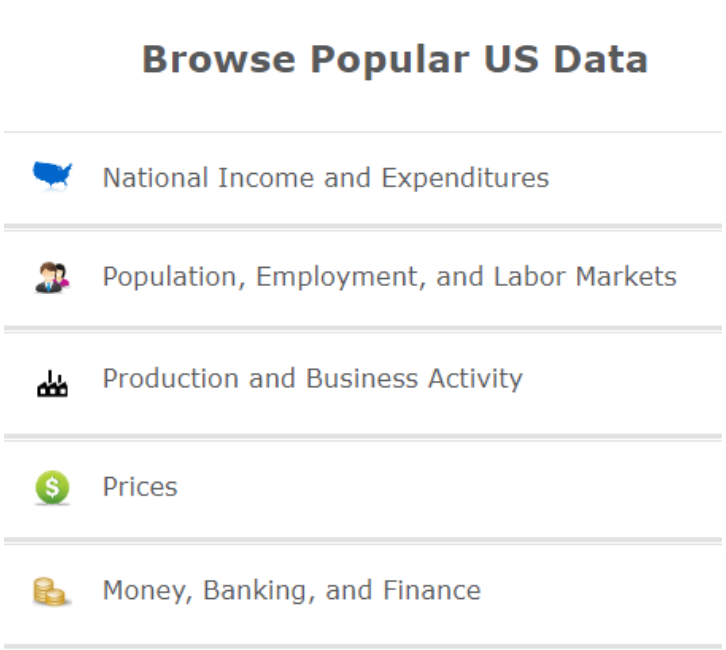
	Product #1	Product #2	Total
Revenue	$ 2,000.00	$ 3,000.00	$ 5,000.00
Variable Costs	$ 800.00	$ 1,800.00	$ 2,600.00
Contribution Margin	**$ 1,200.00**	**$ 1,200.00**	**$ 2,400.00**
Fixed Costs			$ 1,500.00
Operating Income			**$ 900.00**
WACM %	60%	40%	**48%**

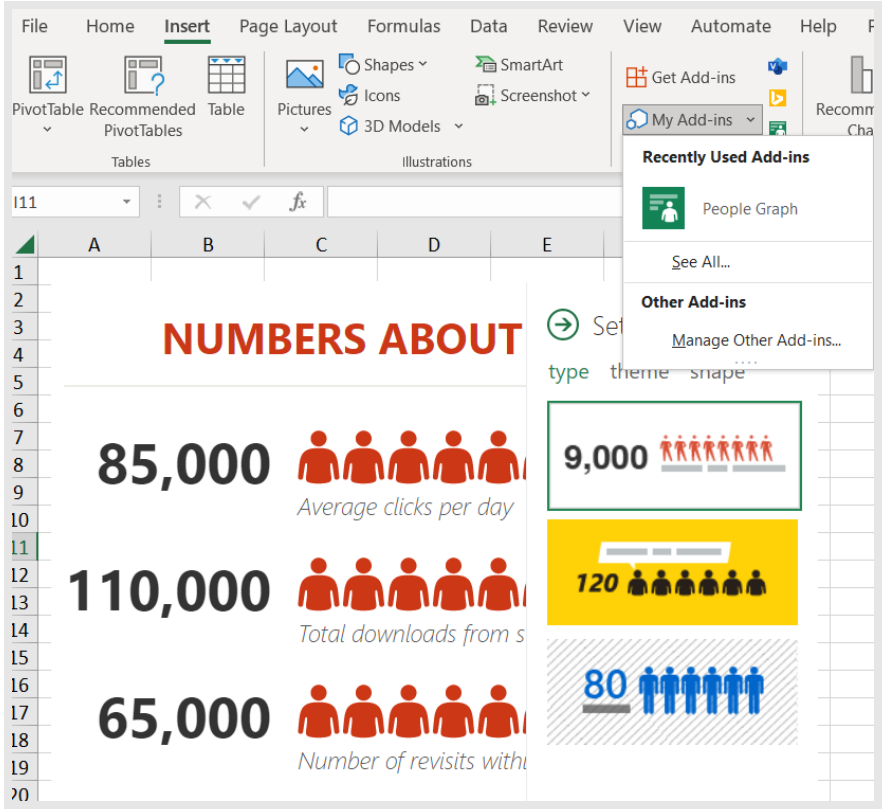
U.S. and Global Macroeconomic Data via FRED

FRED is an add-in created by the Federal Reserve Bank of St. Louis. When enabled, a FRED menu appears with the options above.

The available macroeconomic data comes from multiple sources such as the U.S. Bureau of Economic Analysis, the Bureau of Labor Statistics, and the Census as well the OECD internationally.

Time series data can be pulled into Excel, and there are options to automatically calculate growth rates and/or change the data frequency. Spreadsheets can be refreshed with up-to-date data.



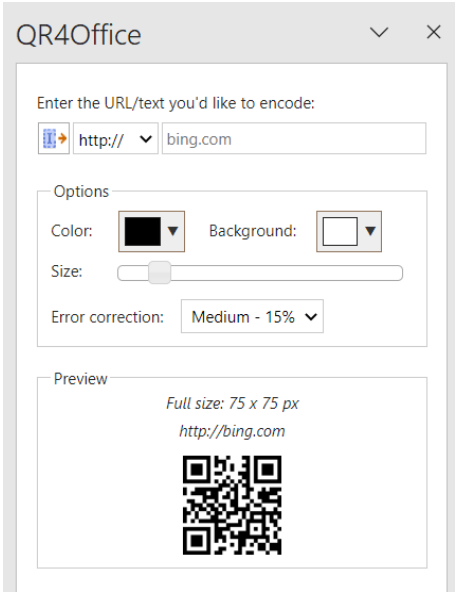


Multiple data visual add-in options are available.

The option pictured here is called People Graph. This add-in offers the people-type icons shown.

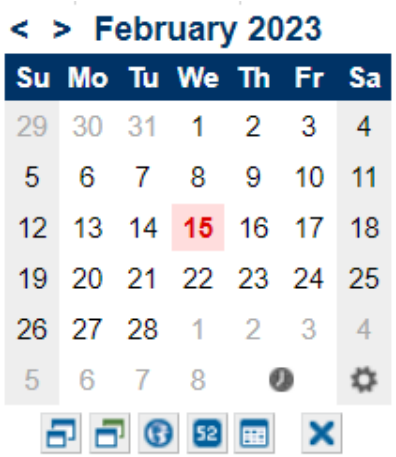
These people icons can be used, for example, as an alternative to a bar chart to show magnitude, frequency, or comparisons.

Some Excel add-ins are just handy or are time-savers.



Multiple QR code generators are available.

QR4Office, operates in all MS Office programs (Word, PowerPoint, etc.).



This add-in is: Mini Calendar and Date Picker.

It is used to select and insert dates or the current time into a spreadsheet.

References

1. American Institute of Certified Public Accountants, & National Association of State Boards of Accountancy. (2019, December). *The statement on standards for continuing professional education (CPE) programs*. https://cdn.asp.events/CLIENT_NASBA_287596D2_5056_B733_49DFF69B632BDF66/sites/LearningMarket/media/Documents/2019-standards-and-fos/Statement_on_Standards_for_CPE_Programs---December-2019.pdf
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H5P Software Options and General Resources

LMS Independent Creation Software

Lumi -- download desktop (Windows, Mac, Linux) version or use cloud version: https://app.lumi.education/

H5P.org – free online account with limited storage: https://h5p.org/user/register?destination=welcome-to-the-h5p-community

H5P General Resources and Help

Information for authors and administrators: https://help.h5p.com/hc/en-us

Documentation such as Content author guide: https://h5p.org/documentation

General examples for download: https://h5p.org/content-types-and-applications

H5P Group (tool creator; originally named Joubel): https://h5p.group/inner.html

H5P Website Resources

Wordpress Interactive Content plug-in: https://wordpress.org/plugins/h5p/

Wordpress myCred for H5P (points and badges for completion): https://wordpress.org/plugins/mycred-h5p/

Learning Management System H5P Resources

Moodle

H5P Activity: https://docs.moodle.org/401/en/H5P_activity

H5P Managing Content: https://docs.moodle.org/401/en/H5P

H5P FAQ: https://docs.moodle.org/401/en/H5P_FAQ

Mobile devices: https://moodle.com/news/moodle-brings-interactive-h5p-content-to-your-mobile-devices/

Administrator Tutorials: https://help.h5p.com/hc/en-us/articles/7505789964701-Setting-up-H5P-com-in-Moodle-LTI-1-1-

Blackboard

H5P as Embedded Media: https://help.blackboard.com/zh-hans/node/34251

H5P (scroll down to *Insert media in the editor* section):
https://help.blackboard.com/Learn/Instructor/Ultra/Course_Content/Create_Content/Create_Course_Materials/Add_Files_Images_Audio_and_Video

H5P guides developed by multiple institutions – simple browser search for: Blackboard H5P

Administrator Tutorials: https://help.h5p.com/hc/en-us/articles/7505840839325-Setting-up-H5P-com-in-Blackboard-LTI-1-1-

Learning Management System H5P Resources

Canvas

Instructure Community discussion and links about H5P: https://community.canvaslms.com/t5/Canvas-Instructional-Designer/H5P-Free-Interactive-Content-Creation-with-HTML5/td-p/275111

H5P alternative way to add to Canvas: https://h5p.org/node/284491

H5P guides developed by multiple institutions – simple browser search for: Canvas H5P

Administrator Tutorials: https://help.h5p.com/hc/en-us/articles/7507920890653-Setting-up-H5P-com-in-Canvas-LTI-1-1-

Brightspace

Community discussion about H5P: https://community.brightspace.com/s/article/Using-H5P-with-Brightspace

H5P guides developed by multiple institutions – simple browser search for: Brightspace H5P

Administrator Tutorials: https://help.h5p.com/hc/en-us/articles/7506356356893-Setting-up-H5P-com-in-Brightspace-LTI-1-1-