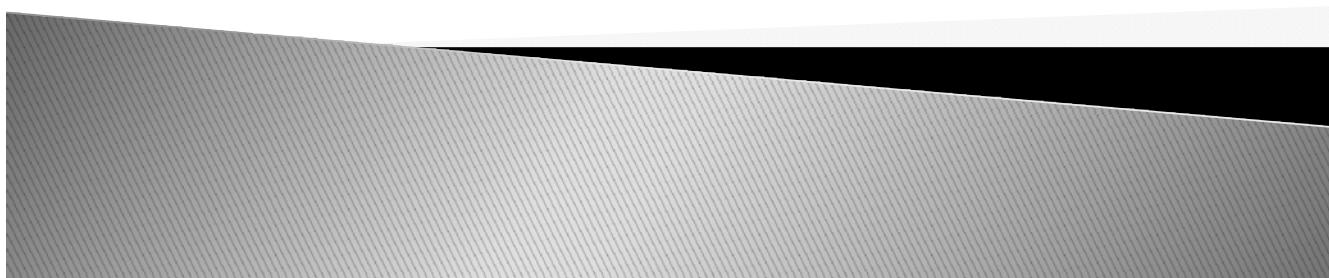# Crossing the Ts and Closing the Tags: Improving Web-Standards Compliance in Open Source E-Learning Platforms

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Overview

▸ **Theoretical Discussion**

▸ **From trained developers to content management systems**

▸ **Advocating Web-standards**

▸ **Markup errors: examples and solutions**

▸ **Stylesheets errors: examples and solutions**

▸ **Conclusions & further suggestions**

Theoretic Discussion:

"*Crossing the Ts and dotting the Is*" :

Paying attention to all the details, for a work complete, accurate, well-formed.

From trained developers to content management systems

Trained developers → limited set of HTML tags
    ↓
New web technologies → need for standards
    ↓
New kind of web → usability evaluation
    ↓
evaluating e-learning platforms → compliance with Web-standards

…Evaluating a web site

▸ Validators, e.g. W3C's CSS Validator, W3C's Markup Validator.
▸ Accessibility and compliance to standards
▸ Well-formedness of static content, Correctness of page structure, Appropriateness of user generated content.

Advocating Web-standards for e-learning platforms

"*Browser wars*" (Internet Explorer vs Netscape)⇒ *Web-standards* (cornerstone of usability and accessibility).

▸ Increase of awareness for the role of standards organisations,
▸ Success in terms of market-share of the new generation of standards-compliant browsers,
▸ Growing literature and media coverage,
▸ Extended use of content management software.

Web standards implementation to e-learning software...

... an easily achievable task which is worth targeting ...

The case of *markup code*

▸ Errors' origin ⇦ administrators/developers

▸ Validity of the markup depends on user's knowledge

The case of *markup code* : examples: errors & solutions

4.1.1 ATutor platform – [course] – file storage page

- Error code in line 435:

```
<div align="center" id="lang" style="clear: left"><br /><form method="get"
action="/atutor/demo/file_storage/index.php?"><label for="lang"
style="display:none;">Translate to: </label><select name="lang" id="lang">
```
Duplicate value for identifier.

Solution:

to use unique values for each identifier, e.g.
```
<div align="center" id="lang_unique_id" style="clear: left">
```

The case of *markup code* : examples:errors & solutions

4.1.2 Claroline platform – [course] – learing path page

- Error code in line 4:

```
<html>
```
Missing XML namespace attribute.

Solution:

to reference the namespace, e.g. for XHTML
```
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
```

- Error code in line 176:

```
<a id="CLDSC"class="item"
href="/claroline/course_description/index.php?cidReset=true&cidReq=101ECON"
>
```
Unencoded entity.

Solution:

to encode all entities. Since this is a common error various techniques already exist. For example PHP coders may use functions like htmlentities() to properly encode strings which contain markup entities. The valid code for this example would be:
```
<a id="CLDSC"class="item"
href="/claroline/course_description/index.php?cidReset=true&amp;cidReq=101E
CON">
```

The case of *stylesheets*

▸ Effect on the presentational layer, and not the functionality.

▸ Lower degree of failures:

　　　　　a) simplicity of stylesheet
　　　　　　syntax

　　　　　b) style directives are kept in
　　　　　　　separate files.

The case of *stylesheets* :
examples: errors & solutions

4.2.1 Dokeos platform – print stylesheet
- Error code in line 1383:

```
margin: 0 10;
Missing the units after the width value.
```

Solution:

```
to add the units, e.g.
margin: 0 10px;
```

The case of *stylesheets* : examples: errors & solutions

4.2.2. Sakai platform – media stylesheet
- Error code in line 2:

```
ul.makeMenu li {   /* the behaviour to mimic the li:hover rules in IE 5+ */
     behavior: url( ../scripts/IEmen.htc );
}
```

Behavior property does not exist in the standard.
Solution:

not to use browser-specific directives. The same (or very similar) effect may be achieved by accessing the element via the Document Object Model which is a standard technology.

Conclusions:

Impatient authors neglect to cross the Ts and dot the Is...

Suggestions:

- Keeping pace with web standards.
- The wider the usage of the platform, the greater the benefits.
- Academic advocacy in favor of Web-standards compliance.
- Evaluation of each platform against validity.
- Quantitative research.

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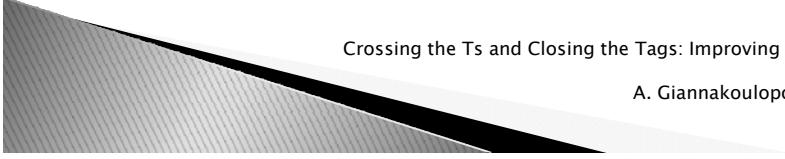A. Giannakoulopoulos, A. Floros, N. Kanellopoulos & I. Varlamis

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Thank you!