

Crafting activity plans as “improvable objects” as a constructionist activity for Greek language teachers

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Abstract

The work presented in this paper is an exploration of the potential of a constructionist rationale in the field of language teacher education.

The evolution of digital media and the advent of multimodal text has shaped a new textual reality in the Language Arts, questioning what was known as “text”. Digital texts are multimodal (distributed through more than one semiotic resource), hyperlinked (organised in different levels) and fluid (malleable and plastic), all three traits affecting both the understanding, and production of written speech. This change has found language teachers reluctant to use new habits of mind and new methods of work, consistent with new textual forms.

Our research with Greek language teachers was inspired by Papert’s influential idea on the importance of constructing and sharing a public entity. Teachers were engaged in designing, versioning and discussing activity plans, considered as public, improvable objects and as malleable entities, amenable to –and instigating– changes, through public negotiation (in the sense discussed by Healy & Kynigos, 2009). We therefore consider teachers’ design of activity plans as an activity with constructionist elements.

Our questions focused on the levels of teachers’ understanding of digital textuality and on the ways this understanding translates itself to their didactical engineering (e.g. if and how the teachers engage their students in activity including construction and public negotiation of digital text).

Through the corpus of successive versions of online discussion transcripts, emerged three levels of teachers’ understanding of the properties of digital texts: a) little or no understanding, b) restricted or superficial, c) complete understanding of concepts, impressed in student engagement in meaningful, collaborative production of digital text. This higher level of understanding is considered as appropriation (in the sense discussed by Kynigos 2007; Fuglestad et al, 2010). These three levels could serve both as analytical tools for further elaboration, and as design aids to the language teacher-designer.

Keywords

Digital text; language teaching; multimodality; design-based teacher education; improvable objects

Introduction: the new communicative order and digital textuality

It is argued that the evolution of digital culture, as well as the new socio-economic reality and emerging literacy practices contribute to the shaping of a new linguistic and communicative reality, which has been termed as a “*new communicative order*” (Street, 1998). It focuses on the literacy practices associated with screen-based technologies and recognizes that “*print-based reading and writing is now only part of what people have to learn to be literate*” (Snyder, 2001: 1). According to the linguist David Crystal (2004: 4), the linguistic reality made possible through broad use of digital media (especially internet based) is one of the changes that have altered the worldwide “*linguistic ecology*”. The literacy young people need in this new context has been defined as “*the sustained and flexible mastery of a repertoire of practices with the texts of traditional and new communications technologies via spoken language, print and multimedia*” (Luke, Freebody & Land, 2000:20). In the following section, we discuss three important characteristics of the new communicative order, which, we argue, have a deep impact and implication on the design of the language curriculum and pedagogy.

Traits of digital textuality: multimodality, hypertext and fluidity

A crosscutting feature of the new digital textual reality is multimodality (Kress, 1997), that is, the distribution of meaning among different semiotic resources (written text, picture, sound, etc.), or, in other words, the construction of meaning through a system of multiple modalities, harmonically and not cumulatively coexistent.

The text hosted in digital environments is also characterised by its hypertextual structure, that is, its organisation in different levels, a fact that challenges the prevailing views and principles on textuality. This non-linear architecture of information allows for the connection of words or phrases on the screen to other texts and media representations, -what has been described as electronic “inter-textuality” (Lemke, 1997). According to Brody (2000: 145): “*A linear text, with specified start and end points, is a stable text. The matrix in which electronic text floats, is quite different – a flexible environment that allows multiple layers and n-dimensional reading variants*”.

Finally, electronic texts are far more plastic and fluid than their printed predecessors. Thorne (1999) refers to the structure of text produced and consumed in digital and hypertext environments as “*changing and multivalent*”. Through tools as simple as common word processing applications, digital texts allow for a number of changes to happen to them. In Brody’s (2000: 145) words, hypertextuality imposes *this polyvalent ability to enter, amend and exit the text in a non linear fashion*”.

Implications on language curriculum and pedagogy

Several implications of the above characteristics affect language curriculum and pedagogy.

The first trait, multimodality, adds two new demands to the repertoire of the future citizen: *understanding* and *producing* multimodal texts. The appropriation of this hybrid form of discourse presupposes the acquisition of synthetic skills, as for instance, the understanding of the relations among meanings (Snyder, 2001). In their influential work “Multimodal Discourse”, Kress and Van Leeuwen (2001) show how two kinds of thought processes interact in the design and production of communicative messages: “*design thinking*” and “*production thinking*,” the kind of thinking which occurs in direct interaction with the materials and media used.

The second trait, hypertextuality, demands the cultivation of a new ability: that of juxtaposing passages of text or text and other media in a functional way, in order to convey a clear message. For second and foreign language education, this mechanism allows making background

information, vocabulary definitions, grammar explanations, inter-linear translation, commentary, or cross-references immediately and conveniently available to language learners (Thorne, 1999).

The third trait, plasticity and fluidity, introduces the notion of malleability of written text, a notion not compliant with the “fixed” printed dominant impression on texts. According to Landow (2000: 166): *“Digital text is fluid because, taking the form of codes, it can always be reconfigured, reformatted, rewritten [...] infinitely adaptable to different needs and uses, and since it consists of codes that other codes can search, rearrange and otherwise manipulate, digital text is always open, unbordered, unfinished and unfinishable, capable of infinite extension”* (Landow, 2000, p. 166).

Implications on C.A.L.L. and the practices of schooling

As obvious from the dates of the cited literature, the traits of digital textuality are nothing new. In fact, about 20 years ago, many arguments were made for the necessity of readjusting language curricula and teaching practices, in order to comply with the emerging communicative needs. In 1991, Bolter talked about the transformation of writing into an *“electronic writing space”*. Landow also argued for the need for a new paradigm in language pedagogies: *“we must abandon the conceptual systems founded upon ideas of center, margin, hierarchy, and linearity and replace them with ones of multilinearity, nodes, links, and networks”* (1992:2).

A reasonable guess would be that these predictions would, by now, have had a major impact on the field of C.A.L.L. (Computer Assisted Language Learning) as well as on language teachers' use of and attitudes towards technology in the language classroom. Indeed, *“digital and network technologies have helped to initiate a significant pedagogical shift, moving many language arts educators from cognitivist and disembodied assumptions about knowledge and learning as a brain phenomena, to contextual, collaborative, and social-interactive approaches to language development and activity”* (Hawisher, 1994; Noblitt, 1995; Ortega, 1997, in Thorne, 1999).

This shift, however, doesn't seem to have deeply affected current practices in formal schooling. Gunther Kress (1997: 58) comments that *“we are returning to a multimodal world after a period of some two to three hundred years of the dominance of verbal writing as the means of communication and representation”*, having then to admit that, *“School, however, does not reflect that return, so that when a child enters school for the first time, there is a huge jump to be made from the “rich world of meanings made in countless ways, in countless forms, in the early years of children's lives, to the much more unidimensional world of written language”* (p. 10). Kress' s assertions are now adopted by several language and literacy educators, acknowledging the need to interrogate the emergent hybrid forms in which verbal and visual modes of representation are combined in new ways (Snyder, 2001). Nevertheless, teachers still appear reluctant to embrace new methodologies and tools related to the new textual forms (ibid). One of the reasons for this may be that the evolution of C.A.L.L. technology has always preceded the maturity of appropriate pedagogical approaches to support it. This causes an effect of reluctance in language teachers with regards to embracing new methodologies and tools related to new textual forms (Snyder, ibid). At the same time, some feel a degree of inadequacy and lack of preparedness for the challenges of the task. They are the product of a print generation: they were shaped, perhaps limited, by print-based understandings of literacy. Unlike the younger generation, they do not feel altogether at ease in virtual environments. For them, images are more often than not thought of as illustrations - even when they fill the entire page or screen and constitute the major mode of communication (Vincent, 2005).

A challenge, thus, for literacy and language teachers is to think of new ways to understand the *“information bricolage”* (Burnett, 1996: 71) needed, in order to be functional in the new communicative order. So a still open issue, as worded by Beavis et al (2009) is: *“What kinds of approaches, models and resources are needed to support teachers in the development and*

implementation of ICT-based curriculum that addresses both print and multimodal forms of literacy?

The potential of design-based teacher education and the idea of “improvable object”

Our study addresses the issue identified in the previous section by using one of Seymour Papert’s influential ideas, and framing it in the context of design-based teacher education.

In Greek language and literacy studies, multimodality and dynamic perspectives on text production are still depreciated as curricular values, the printed text still being prevalent in teaching and exam systems (Koutsogiannis & Mitsikopoulou, 2004). On this basis, we assert that, for language teachers in this context, training activities of added value should include: a) collaborative production of activity plans integrating the use of technology, b) public discussion on the traits of multimodality present in these activity plans and c) guidance on how to transfer this approach in their own teaching habits, e.g. engaging the students in understanding and collaborative production of digital texts. To support this, we adopt a broad perspective of constructionism, on the basis of Papert’s seminal idea that effective learning flourishes in contexts of collective negotiation of shared constructions (Papert, 1980). This idea was articulated with young children in mind, and was mostly exploited in science, mathematics and technology. At a later stage, it has been also used in the field of teacher education, for example, mathematics (Kynigos, 2007; Healy & Kynigos, 2009;). A similar approach has been adopted by Laborde (2001), who worked with different versions of mathematics teachers’ activity plans, as they gradually acquainted themselves with digital tools. She characterised these versions as “*experimental teaching sequences*”, opening a “*window to teachers’ epistemologies*”, and offering valuable information on the course of their thinking during this experience.

We use the above ideas in the context of Language Teacher Education, and complement it with a basic principle of design-based teacher education, according to which, teachers have to engage in the construction of artifacts (Mishra & Koehler, 2003). This process is collaborative and centres around the design of tangible, meaningful material entities, as end products of the learning process (Blumenfeld et al., 1991). Activity plans, as written texts, are not material artifacts such as models, simulations or other such “tangible” entities. They can be, though, viewed as “conceptual artifacts” (Bereiter & Scardamalia, 2003), embodying, reflecting, and using ideas. These “improvable objects”, have a dual role: the center of the collaborative activity, and communicational tools, shaping a common language within a learning community (Bereiter & Scardamalia, *ibid*). In this sense, teachers’ design activity is considered as bearing a constructionist element, that of publicly sharing and discussing specific objects and constructs.

Research questions and design

The first research question relates to if and how the design of digital environments for text production (DETP) induces or enhances the understanding of the three traits of digital text by teachers:

- How do teachers perceive the characteristics of digital text?

The second research question focuses on if and how this understanding translates itself to their didactical engineering, e.g. if and how they engage their students in constructionist activity, considering this second level of understanding as *appropriation –our emphasis-* (in the sense discussed by Kynigos et al, 2003; Fuglestad et al, 2010;). In other words, we suggest that teachers understanding of theoretical ideas is basic for their development. However, it is putting these ideas *in use* through designing activity plans that make students engage in constructionist activity is what differentiates theoretical grounding from enrichment of the teaching practice repertoire.

- If / if yes, how do these perceptions affect their professional identity and mindset whilst they craft instructional ideas and design teaching scenarios?

The tools we decided to use as DETPs were intentionally open-ended, that is, not drill-and-practice-style software, but environments such as office applications (word, powerpoint) and web 2.0 tools (blogs, wikis, media sharing applications). These, though not designed for educative purposes, are considered appropriate for authoring digital text, as they allow for any configuration of media and written information and free the user from predefined paths.

Teachers worked in the following order and processes:

- First, they were introduced to the three traits of digital textuality, both through reading relevant literature, and through whole class discussion, synchronous, and asynchronous.
- Then they were asked to work on a small but coherent teaching proposal, including the use of a DETP of their choice, publish it on the class forum and discuss on each others' ideas. Meanwhile, they would also have to work with their chosen digital tool and accompany their ideas with this artefact.
- This discussion' s output, was, in many cases, the versioning and re-adjustment of the proposals –and the artefacts- according to the peer feedback received.
- Finally, they were asked to prepare a longer text –as their final assignment- individually, called a “scenario of use of digital tools”. This was seen as the final construct. Though an individual creation, we consider it a construct bearing evidence of collective understanding and negotiation, as it is the product of both individual work and study, and of the whole design process.

Our data corpus comprised of: a) the electronic discussion transcripts, from where we distinguished the different versions, and b) the final proposals (accompanied with digital artefacts, such as powerpoint presentations, videos, web 2.0 links etc.).

Our analysis was based on two axes, directly related to the research questions:

1. Teachers' understanding of the traits of digital textuality
2. Teachers' appropriation of the traits of digital textuality, informant of their future practice.

Findings

We identified three levels of teachers' understanding, represented as an evolving process: in level 1, teachers propose activity plans which neither depict their understanding of digital text, nor addresses students' respective understandings, as a learning objective. In level 2, teachers propose activity plans which indicate a certain level of their understanding of digital text, and an attempt to introduce their students to it, but this is restricted and exploratory. In level 3, teachers craft activity plans which indicate a deep level of understanding and a clearly stated aim of transferring this to students. The criteria used for this examination directly relate to the research questions and are the following:

- Relation of teaching aims and objectives to the traits of digital text
- Use of DETP functionalities supporting the functional and not cumulative combination of media modalities
- Support of such aims and objectives by the proposed flow of student activities: students are expected to *understand* digital text *by* collaboratively *producing* public and negotiable artefacts.

Each level corresponds to a set of indicators that emerged from the data and a description composed afterwards, based on the indicators (Table 1).

Levels	description	indicators
1	The proposal (and /or its versions) show no signs of understanding of concepts and as a result no signs of engagement of students in constructionist activity (digital text production)	<ul style="list-style-type: none"> - Absence of didactical aims related to the concepts - Aims restricted to technological literacy - The flow of activities doesn't include students' engagement with digital text production - DETP functionalities are not exploited or combined to support the concepts - Students are expected to understand, but not produce digital text
2	The proposal (and /or its versions) indicate a degree of student engagement in constructionist activity, but this is restricted and superficial.	<ul style="list-style-type: none"> - Presence of didactical aims related to the concepts but not adequately supported by the proposed flow of student activities - The flow of activities includes engagement with digital text understanding, and/or production, but DETP functionalities are not fully exploited or combined to support the concepts - Students are expected to produce digital text, but the production is either too restricted (all media provided by the teacher) or too superficial (cumulative, not functional use of different modalities) - Students are expected to engage in digital text production, but only to "announce" it to the class, not negotiate it as a malleable entity
3	The proposal (and /or its versions) indicate full understanding of concepts as depicted in student engagement in meaningful production of digital text	<ul style="list-style-type: none"> - Presence of didactical aims related to the concepts, adequately supported by the proposed flow of student activities - Students are guided to fully exploit or combine DETP functionalities to the concepts - Students are expected to produce digital text, taking full advantage of the range of media they have available - Students are given the opportunity to publicly negotiate their constructs

Table 1. Teachers' levels of understanding of digital text

This matrix was drafted from data derived both from the versions of the activity plans discussed by teachers, and by their final deliverables / products. 8 teachers presented three versions of their work and 11 presented only two.

With regards to teachers' evolution through the levels, as shown in table 2, about half of the students (10) didn't show any progression and remained on the first (3) or the second (7) level

of understanding. The rest of the class (9) indicate a progressive course, mostly from level 1 to level 2. Only 3 teachers made it to level 3, while 2 others digressed either from 2 to 1, or from 3 to 2.

fixation on 1	3
fixation on 2	7
progression from 1-2	4
progression from 2-3	2
progression from 1-3	1
digression from 2-1	1
digression from 3-2	1

Table 2. Teachers' evolution through the levels

The majority of teachers' work is characterised either by a gradual progression from the first to the second level, or a fixation on the latter. This is further certified by the class average of 1.8 (derived by counting the scaling for each version of each participant).

An indicative example of fixation at a certain level (2) is the case of John: his work was presented in three successive versions. In the first one (level 1), he states that:

"The students, in groups, are assigned to create their own powerpoint presentation, with 150-200 number of words".

It is obvious from this statement that he hasn't grasped the concept of functional combination of media –the essence of multimodality- and regards MS powerpoint, a DETP offering multiple configurations of media and written text, as just a word processor. However, in his second version (altered after the peer feedback he received), he starts referring to the concepts of collaborative text production, multimodality and fluidity, enriches his tool repertoire with an internet browser and MS paint, but still fails to connect these to solid teaching objectives. As he says in the forum discussion:

"Students should acquire technological literacy, by learning the basic functionalities of word processing".

His final version remains on this level. Though his proposal is now enriched with a much richer variety of digital tools (a blog, a web file repository, Ms Word, video and a database programme), his focus remains on just technological literacy. And though his proposal includes student engagement with specific traits of digital text, this is done in a subtle way, and is not clearly articulated, as shown in the proposal extract below:

"Students are divided in groups of three and asked to collaborate on one presentation, as a digital story. This should include pictures, sound and text, and these should aid successful transmission of the message of communication. Finally, the groups upload their stories to the class blog".

Here, there is an intention of engaging the students in digital text production, but the aim stated for this (*successful transmission of the message of communication*) indicates lack of full understanding of the potential of multimodal discourse.

An indicative case of progression (from level 2 to 3) is that of Maria, whose work was presented in two successive versions. In the first one (in the forum discussion), she presents a proposal combining the use of MS Word and powerpoint for the joint production of a story, and the manipulation of its beginning and end by different groups of students. Though this activity includes, in a high degree, a collaborative process of co-authoring a multimodal text, this is not what she verbally stresses. Instead, she focuses on the added value of the use of new media in general. However, in her final proposal, first she alters her toolset, by replacing office

applications with web 2.0 elements (a blog, where a story is collaboratively authored and publicly monitored). Their use is supported by appropriate stated objectives, depicted in the proposed flow of activities. Joint production and public negotiation of digital text now seems one of her clearly stated pedagogical considerations:

“Students are expected to produce joint products using social applications [wiki], and discuss on these on the class blog. The teacher will monitor this discussion and give constant feedback”.

Discussion

In this section, we discuss the following three points, drawn from our experience and conclusions:

1) The potential of constructionist ideas in the area of language teacher education

Constructionist approaches have been scarcely used, both in the areas of CALL (computer assisted language learning), and in language teacher education. We attribute this to the saliency of the concept of “construct” or “construction” in the field of literacy. Exploring the new landscape shaped by digital text induces the experimentation with what actually is tangible and constitutes a construct. We suggest that the idea of activity plan design bears constructionist elements. Further empirical research would allow for more robust theoretical grounding of constructionist principles in language teacher education.

2) The difference between understanding and appropriation

Our experience with the construction of activity plans and digital tools by teachers, and their versioning, discussion and negotiation made us think of the focus of our teacher training curriculum. If it is on understanding the traits of digital text, reading related literature and individually producing such texts should be enough to provide a language teacher with a basic theoretical background and one indicative experience with DETPs. There were enough activity plans in our corpus which indicated a certain level of understanding, though they weren't promising, in terms of the adoption of this understanding and its translation in future practice. If, though, we aim both at understanding, and at integrating this new skill in a teachers' professional practical repertoire, then a course should include both theoretical sessions, and experiential learning, through hands-on activities with actual DETPs, active discussion on their functionalities and the restrictions or potential they afford, and constant effort to relate these with an actual activity plan, addressed to real world students. This has not proven an easy task for language teachers in our context, as the focus on what the students will *do* with a text and a digital tool has never been an element of Greek language curricula, considering language learning as a cumulative acquisition of knowledge, and texts as static and fixed entities, only amenable to teacher feedback.

3) The importance of tool use in teacher appropriation and student engagement

We also noticed that teachers who reached a deeper level of understanding did this after having drafted more than two versions of their activity plans. These final products always include the use of a wide range of digital tools, functionally and purposefully combined to lead to specific learning results. The usual progression is from office applications to web 2.0, for example, co-authoring of text in word evolves in co-authoring of text in a wiki, thus exploiting the essence of collaborative text production a wiki offers. This, of course, demands a great deal of hands-on work with the tools, evident in most discussion around level 3 products. In turn, this intensive “bricolage” seems to have a deep effect on teachers' design rationale. Those who didn't present multiple versions –and consequently, didn't intensively experiment with technology themselves– didn't expect their students to do this, either. On the other hand, teachers who reached level three through multiple versioning and discussion, also expected their students to engage in such activity and proceed from just understanding new forms of text, to actually producing them.

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