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MULTIMEDIA CREATION: AN EDUCATIONAL APPROACH

THEODORE H. KASKALIS
Nursery Department
University of Western Macedonia
3 km Florina – Niki, 531 00, Florina
GREECE
kaskalis@nured-fl.auth.gr

THEODORE D. TZIDAMIS
Department of Applied Informatics
University of Macedonia
156 Egnatia str. P.O. 1591, 540 06, Thessaloniki
GREECE
tzidamis@uom.gr

KONSTANTINOS MARGARITIS
Department of Applied Informatics
University of Macedonia
156 Egnatia str. P.O. 1591, 540 06, Thessaloniki
GREECE
kmarg@uom.gr

KONSTANTINOS EVANGELIDIS
Department of Civil Engineering, Polytechnic School,
Aristotle University of Thessaloniki,
54006, Thessaloniki
GREECE
kevan@trias.gr

Abstract: Not so many years before, “multimedia authoring systems” came to light. Not immediately, the term gave a boost to the market of multimedia authoring; a market seeking the most powerful tool ever. Since then, that market has evolved to a variety of choices. A plethora of tools is now offered, each hypothetically serving the same cause: The production of more interactive and powerful multimedia presentations. Leaving “power” on the side, this article outlines a large variety of products through the scope of low cost and effectiveness while underlining the need for cheaper and simpler tools for education. Based on a 44 multimedia tool survey, this attempt tries to shed some light to educational multimedia authoring and how it can – or cannot – be implemented through existing tools in the market.

Key-words: Multimedia authoring tools, Educational multimedia, Multimedia software review

1. Introduction

Since composing multimedia presentations is a procedure far more complex than writing plain text [2] early came the need for special tools. At first, the whole game of multimedia authoring was played in the area of plain

programming languages. Despite the power of those, that came to a cost as much time and effort was needed in order to compose a decent application. The introduction of *authoring languages* saved the day up to a point; authoring languages worked only within the limits of a confined set of multimedia-related commands. Unfortunately, the problem in this

case was the strict standardization of the results and the inflexibility of the whole concept [4].

At last, during the previous decade, *authoring systems* came to light. These were – and continue to be – more complex development environments that allow users with no special programming skills to compose multimedia presentations interactively and visually. That implies the use of menus, wizards and other graphic components instead of old fashioned verbal commands. Of course, developing possibilities of authoring systems are still far less in comparison to programming languages due to the exchange of low level programming details that handle multimedia objects [3] for convenience. However, not only the former offer new, easier ways of executing most common commands, but usually incorporate a “script editor” that simulates the latter, as well.

Analyzing authoring systems further, it has to be stated that, at first, it was all about applying interfaces onto authoring languages and nothing more. This merely meant materializing the idea of combining command modules for experienced users with GUIs (Graphic User Interfaces). However, next generations of similar packages were based on different concepts [4].

The purpose of this article is to shed some light on questions like “How much one has to sacrifice an educational multimedia authoring package?” and “what basic characteristics can be expected by an educational multimedia authoring tool?” In a few words, the whole point is to give a global view of the multimedia authoring field while detecting any blank spots.

2. Data

Table 1 holds basic information regarding 44 programs that the current market status has to offer. The presented data is a small part of a full survey that was held by studying each package separately and standardizing it as much as possible. The base of this standardization was provided by a notable

effort made by [5] that used tags like *Variety of designed applications, user interface, test questions, multimedia, communication with other programs, branching and scripting* to describe each package in a collective manner.

The table offers the data in the format “Program / Company / Price”.

Table 1: Programs

| | | |
|--|--|--|
| Authorware <i>Macromedia</i> \$2999 | CBTMaster Lessons <i>SPI</i> \$49 | DazzlerMax Deluxe <i>MaxIT Co.</i> \$1995 |
| Director <i>Macromedia</i> \$1199 | EasyProf <i>EasyProf</i> \$1105 | eZediaMX <i>eZedia</i> \$169 |
| Flash <i>Macromedia</i> \$499 | Flying Popcorn <i>Parasys</i> \$149 | Formula Graphics Multimedia <i>FGX</i> \$49.95 |
| HyperMethod <i>HyperMethod</i> \$190 - \$390 | HyperStudio <i>Knowledge Adventure</i> \$69.95 - \$199.95 | Infochannel Designer <i>Scala</i> \$359 |
| iShell 3 <i>Tribeworks</i> \$495 | Liquid Media <i>SkunkLabs</i> \$200-\$140 (academic) | Magenta II <i>Magenta</i> \$149 |
| MaxMedia <i>ML Software</i> \$50 - \$120 | Media Make&Go <i>Parasys</i> \$149 | Media Mixer <i>Alchemedia, Inc.</i> \$129 |
| MediaPro <i>MediaPro</i> \$99 | Mediator 7 Pro <i>Matchware</i> \$399 | MetaCard <i>MetaCard Co.</i> \$995 |

| | | |
|---|--|--|
| MotionStudio 3 <i>Wisdom Software</i> \$39.95 | MovieWorks Deluxe <i>Interactive Solutions</i> \$99.95 | MP Express <i>Bytes of Learning</i> \$49.95 |
| Multimedia Builder <i>Media Chance</i> \$60 - 45 | Multimedia Fusion <i>ClickTeam</i> \$99 | Multimedia Scrapbook <i>Alchemedia Inc.</i> \$89 |
| Multimedia Suite \$649 | Navarasa Multimedia 4 <i>Navarasa Multimedia</i> \$29.99 | NeoBook <i>NeoSoft Co.</i> \$199.95 |
| ODS Players <i>Optical Data Systems</i> \$229 | Opus Pro <i>Digital Workshop</i> \$249.95 | Ovation Studio Pro <i>R. I. Soft Systems</i> \$299 |
| Platypus Multimedia Author <i>Platypus Software</i> \$228 - \$272 | Powerpoint <i>Microsoft</i> \$229 | Presentation Publisher <i>CMB Software</i> \$89.95 |
| Presentation Wizard <i>Alchemy Mindworks</i> \$30 | Revolution <i>Runtime Revolution</i> \$497.5 | Shelldrake Developer <i>Shelldrake Technologies</i> |
| Slim Show <i>PC Whole Ware</i> \$49.95 | SuperLink <i>Alchemedia Inc.</i> \$129 | Tactic! <i>BGW</i> |
| Toolbook Instructor <i>Click2Learn</i> \$2599 | Twin Player 3 <i>CD-ROM Studio</i> \$110 | |

At this point, it has to be stated that all the gathered numbers may vary slightly, due to market changes and offers. Additionally, vague data was not processed at all which justifies the existence of lacunas in the table.

As one can see, prices vary from \$29.99 (Navarasa Multimedia 4 by Navarasa Multimedia) to \$2599 (Toolbook Instructor by Click2Learn). Whatsmore, some tools seem to offer themselves at two prices. In the majority of cases, this happens simply because of different target pricing by the companies. For example, certain software packages are offered to academic institutions at a lower price. The same applies to students, as well.

However, even if we categorize all packages based on their lowest price, Fig. 1 shows that, in most cases, one needs to spend \$100 to \$1000 for a multimedia authoring tool. An amount that, usually, cannot always be spared by a teacher or parent.

Package Prices



Fig. 1: Package prices

In response to that, sometimes there are low-cost software offers that leave a certain percentage of functionality out of the whole deal, e.g. a cd / dvd burning utility that can be bought as a cd or dvd burner separately at a lower price. This may occur because the market is still immature for a product that has so many capabilities (such as the case described) or because of a certain cost that has to be shifted to the final buyer.

To this category falls the example of mp3 encoding. In order for a multimedia authoring tool to encompass the mp3 technology, some copyright issues have to be dealt with. As a result, Multimedia Builder (by Media Chance) costs \$60 with an mp3 licence and \$45

without.

Many questions arise from all the above: Where should the benefit standards be set when the cost is set to \$2600 for a multimedia authoring tool? Making the question clearer, what would an educator earn – by purchasing a costly program – in forms of classroom assistance? And, mainly, how much should the same teacher know regarding multimedia authoring or programming, in order to achieve a high benefit/cost factor for that tool?

3. Statistics

Data emerging from the study indicate that good multimedia authoring tools tend to be very expensive while low-cost programs often come too specialized to act in an integrated manner, thus leading to the need for a different tool for every subject.

The diagrams below give a more complete overview of the situation that was evaluated. Let it be noted that everything is examined through the scope of functionality and convenience. Using this as a logical base, a complete multimedia authoring tool has to provide all the characteristics that an educator with no special IT skills would find useful e.g. supported sound, picture and video imports, elementary text editing, animation, export capabilities, etc.

Most of the times, multimedia authoring consists of the combination of images, sounds and videos. Therefore, it is essential for a multimedia tool to be able to import as many formats as possible.

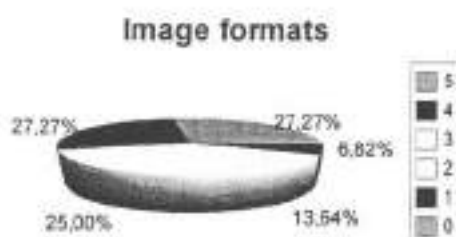


Fig. 2: Image formats

Knowing that the 0 to 5 scale is just a matter of subjective evaluation (where 0 reflects "inexistent" and 5 reflects "excellent"), one can deduce that most of the programs (Fig. 2) support a significant number of image imports (more than 7 possible file extensions, to be exact).

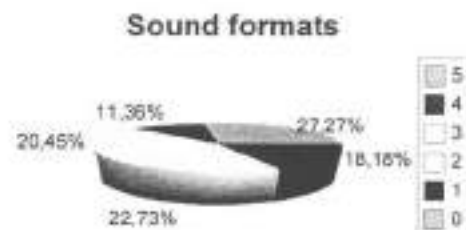


Fig. 3: Sound formats

As shown in Fig. 3, most programs have been graded highly when talking about sound imports. However, even if a percentage of 11% recognizes only 4 audio file extensions, this may mean nothing if these extensions incorporate common formats as mp3, wav, etc.

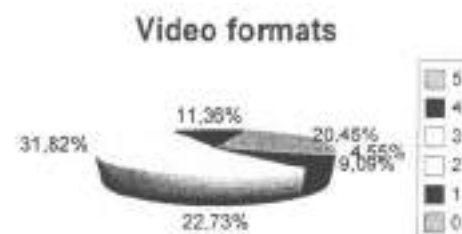


Fig. 4: Video formats

The sad percentage of 4,55% in Fig. 4 corresponds to Motion Studio 3 and Presentation Wizard that offer no video imports whatsoever. A fact that raises the question: "Who would buy a multimedia authoring tool that supports only images and sound?" Fortunately, 7 packages support between 4 and 8 different video file types which is more than efficient, most of the times.

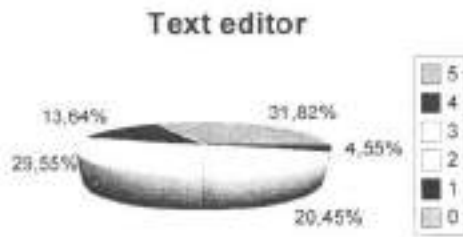


Fig. 5: Text editor

Fig. 5 betrays the negative example of two programs: Slim Show (that supports one – line – editing only) and CBT Master (Lessons) that does offers a text editor; nevertheless, no text importing is possible. Despite that, the majority supports text editing sufficiently.



Fig. 8: Web

Regarding the web, in parallel with the latest evolutionary tactics in the www, some programs mutated themselves in order to be able to act as network platforms that allow users to communicate. This allows file projection or exchange between the two (or more) ends.



Fig. 6: Painting Animation



Fig. 7: Animation

A general view of the most important aspects of multimedia authoring is given in Fig. 6 and Fig. 7. It is most unfortunate that only Macromedia products (Flash and Director) have been rated as "Excellent" in Painting and Animating.

For example, what if a teacher needs a file that has probably already been composed by another teacher? One step further, what if there were some kind of database where a variety of educational files would be stored so that every educator could choose the one that suits his / her needs? The situation in the field of multimedia authoring based on the market status can be seen on Fig. 8.

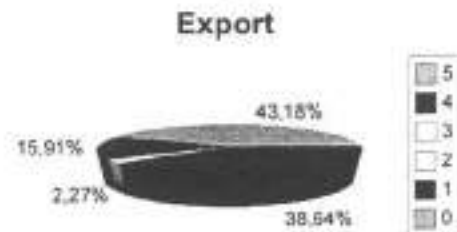


Fig. 9: Export

Last but not least, there is the issue of the export of executable files (Fig. 9). Composing a multimedia presentation and projecting it are two wholly different concepts: A multimedia presentation is constructed in order to be distributed to several computers and/or presented to an audience. If the file can be executed by itself, all you need is a computer. On the other hand, if the file needs the program in which it was created in order to be executed, then things get too complicated: These files can be interpreted only in

computers that have that specific program installed.

Of course, there is an intermediate situation where you need the program to compose the file but you only need a smaller program (a "player") in order to execute it (e.g. Macromedia Flash and Flash Player). This solution is truly a clever way to avoid the installation of the whole program into every single computer. Nevertheless, the search for a compatible player is not always an easy thing to do.

4. Educational analysis

Most unfortunately, up until now no obvious sign of educational behaviour has been found. Of course, there are some programs that offer similar capabilities but the cost is too high; either in money or in time spared.

However, out of the variety of programs, some stood out, based on the criteria – no matter how subjective – used in the review. Therefore, Fig. 10 presents the top 7 programs evaluated.

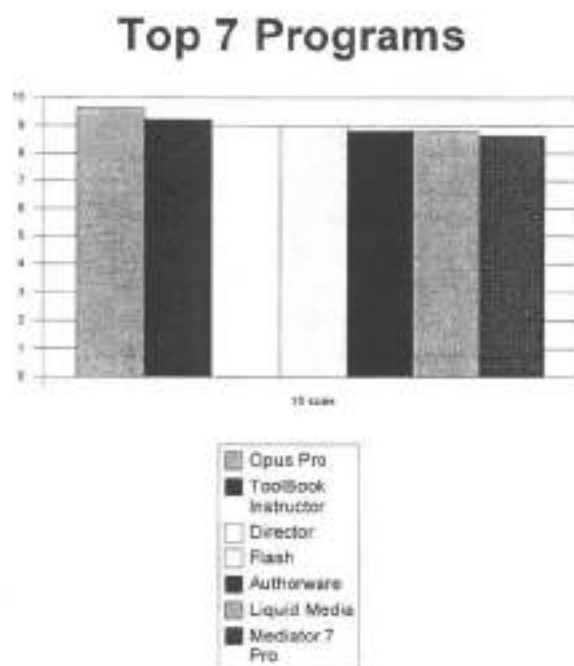


Fig. 10: "Top seven" list

As seen, Opus Pro achieves slightly higher than Mediator 7 Pro, at the bottom of the list. The grades were produced by converting 1-to-5 grades to a 10-scale system.

But... it doesn't make any difference, anyway. The point is not to deduce a program's superiority over another tool. Rather than that, our purpose is to logically end up with the question: "What do I need multimedia authoring for?" Because, as shown in Table 2, "cold data" is not as cold as one would wish; Opus Pro holds the first place above ToolBook instructor while the latter offers much more image importing possibilities, a case similar to the pair of Director – Flash.

Table 2: "Top seven" list imports

| Prog | Images | Sounds | Videos | S |
|---------------------|--------|--------|--------|--------|
| Opus Pro | 12 | 5 | 8 | 249,95 |
| ToolBook Instructor | 17 | 3 | 5 | 2599 |
| Director | 10 | 5 | 3 | 1199 |
| Flash | 17 | 3 | 6 | 499 |
| Authorware | 4 | 5 | 5 | 2999 |
| Liquid Media | 24 | 16 | 7 | 200 |
| Mediator 7 Pro | 8 | 4 | 4 | 399 |

So, it is only natural to conclude that multimedia authoring is far complex a procedure for a "perfect package" to exist. Thus, a tool that serves one purpose may not serve another.

In this article, an effort is being made to shed light to the educational aspect of the debate and try to extract information that would naturally help us exclude the virtues that an *educational* multimedia authoring tool should have.

Attempting a practical approach to Table 2, we need nothing more than question ourselves: "What bothers us the most?". High prices. In other words, what good does it make to buy ToolBook instructor (even if it is the best

program in the market) when the cost is up to \$2600? Why should a teacher spend such an amount of money so that he/she can "buy" the ability to import 17 different image types? Especially when it is certain that only two or three of them will be needed.

Sadly, all the programs have pros and cons. But, apart from all that, one is the big educational drawback of them all: Commercial nature. Because a decent educational multimedia authoring tool would offer at least two things:

- Low price: Keeping in mind that all the layers of education society cannot afford a pile of money for a single software package except perhaps gigantic educational institutions, the perfect *educational* multimedia authoring tool has to be cheap enough for a school teacher, a parent or even a student to buy.
- Ease-of-use and a friendly GUI [4]: Extending the same thought, no one needs a program that means the consumption of two months' work in order to produce a single executable file. Therefore, the educational approach to multimedia presentations should be easy enough to learn through a single weekend or less. And, of course, regardless the user's skills and academic status.

In a few words, the underlying problem is one and only: All the multimedia authoring tools examined and graded in this article have a drawback. A drawback consistend to their nature and the purpose they came to serve: *Commerciality*.

All the programs examined in this review were developed targeting a large group of people/users in a universal market. Unfortunately, it was that same universality that works against them when it all comes to the sensitive field of education: It would be rare for a primary school teacher to care about all the capabilities that Macromedia Flash has to offer, no matter how fascinating these may be or how small the Shockwave export file is!

All that one needs for the educational purposes that arise in a classroom is a simple program

that can perform all the basic tasks in a very easy way. Supposing that a whole bunch of more complex set of tasks may be hidden somewhere below the superficial layer of the interface...

5. Summary – Conclusions

Sadly enough, despite the detail in which the characteristics of every tool were gathered, it has to be reminded that only one sector has not been adequately covered: The educational one. And that is not due to lack of analysis but because no serious educational behaviour has been found to any of the programs examined.

And this is a real pity, given the fact that education is the primary field that could benefit from the use of multimedia computing; lessons, interactive courses, multimedia tutorials and much more could be a small part of the material produced by educators. But, in order for that to be feasible, there has to be a way to produce every-day applications for class "consumption". A tool that is:

- Easy enough for a person with no special computer skills. A multimedia authoring tool that can be dealt with in a single weekend without the need of books, tutorials, lessons.
- Cheap enough for anyone. Because it is only then that every educator that has spotted the need for a multimedia authoring tool will take up the opportunity and decide to invest money and time.

Therefore it is only natural that, from the above, derives the following question: Why is there no open source representative among the 44 programs examined here? Shouldn't there be an educational multimedia authoring tool free to use, distribute or even alter at will? For only in the open source community can a tool for this purpose be found: Cheap as it can be and open to anyone.

The inexistence of such a tool leaves an obvious gap in the educational field, even if a variety of needs can be covered by the existing commercial multimedia packages. And, by

that, there is no implication that the existing software is low-quality. On the contrary, commercially available tools have been designed and implemented aiming to a different audience [1]. However, they are found incapable to serve a purely *educational aim*.

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