The Usability Factor: Improving the Quality of E-Content

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E-Business and E-Content continue to be one of the key drivers for innovation throughout Europe. According to EITO (2004, p 3), the ICT market in Western Europe will grow by 4% in 2005. Providers of software and content are willing to make huge investments that will have to pay off in terms of market share and revenues. However, the basic lessons have been learned: Nowadays everyone can get connectivity, publish on the web and start a new online shop with a few mouse clicks. Software and programming skills no longer make a difference, and coding continues to be outsourced to countries with lower labour costs. Moreover, the wealth of information available means that there is a shift of power within the communication process. Recipients may choose between a huge range of broadcast channels, corporate publishing products, websites, E-Mail newsletters, and mobile services. As a consequence, attention tends to become a rare commodity in the information society (Goldhaber 1997; Franck 1998). And this is not only a question of attractive content and packaging, but also of accessibility and ease of use.

Therefore, the "ability to build practical, useful, useable, and satisfying applications and websites" (Schaffer 2004, p xvii) remains one of the key differentiators in the E-Content business. Usability, defined as "the effectiveness, efficiency and satisfaction with which specified users achieve specified goals in particular environments" (ISO 9241) has to be a key part of any strategy dealing with websites, mobile applications and online games. Successful media ventures need both a philosophy and a management system that rather place the user and his or her needs in the centre than the engineer or the designer.

This chapter explores the state of the emerging discussion within academia and practice. We will look into economic and social drivers, discuss methods of usability engineering, and outline the most important areas of application.

1 Rationales of Usability Enhancement

While usability has been somewhat of a buzzword in recent years, its importance is still underestimated in many cases. This is often due to some common misconceptions. Especially decision-makers tend to think that usability is just a nice-to-have but not mandatory. Even those who catch the importance of the issue may believe that there is no need for usability experts in the process since any designer can take care of it. And creative people fear that usability guidelines lead to a streamlined and boring look of the final product, preventing innovation to take place (Heinsen and Vogt 2003, p 14). These views, however, are very limited and ignore the multitude of positive effects gained by full-scale usability testing and engineering.[1] Everyone looking for success in the E-Content business has to work on usability enhancement. It pays off in economic terms, and it is necessary to fulfil stakeholder expectations in the social field.

1.1 Economic Drivers

From a business point of view, usability is a major aspect of customer satisfaction and therefore one of the most important things any company should look for. Industries producing durable consumer goods have recognized this a long time ago. Nowadays, usability engineering is an integral part of any excellent product development process, no matter whether the product is car armatures, washing machines, DVD recorders or even door knobs. And what is true for washing machines is also true for E-Content applications: those that are easy to use will satisfy the user and will make him or her stick to it rather than switching to products by competitors. No product, website, mobile service, or online game can be successful in the long run if its customers face problems using it.

Usability testing and engineering contributes to the bottom line in several dimensions (Zerfass and Zimmermann 2004, p 6):

- The website, mobile application, or online game will be used more often and more efficiently;
- Uncertainty and frustration on the user's side decline as well as the feeling of being left alone;

[1] A number of websites offer up-to-date insights, information and case-studies about the usability and accessibility of digital media; e.g. http://www.usabilityfirst.com, http://www.usabilityviews.com, http://www.upassoc.org, http://www.usability-competence.de, and http://www.useit.com/alertbox

- Satisfaction rises significantly;
- This in turn stimulates the willingness to consume content and to use services offered by the application;
- The application is thus able to fulfil its role within the communication strategy or the creation of customer value;
- This leads to a higher return on investment (ROI) and makes sure that the investments into E-Content pay off in the long run.

Therefore, it makes sense to think of consumer needs and usability issues as early as possible within the innovation process. Any investment in usability testing before the release will pay off later. As a general rule, one can claim that every euro invested in usability will lead to savings between €10 and €100 later on (IBM 2003). However, it can be difficult to convince decision makers that money spent on usability engineering is not wasted. But there are ways to illustrate that the investment will pay off (Heinsen and Vogt 2003, p 19–40; Schaffer 2004, p 18–22):

- Changes before the release of any E-Content application are much cheaper to implement than modifications of the finished product – and there is always the chance to lose customers when changing an existing application;
- Usability significantly reduces the costs for customer services once the product is released; people will have less problems dealing with it and will not call the hotline or complain to the customer services department;
- Consumer loyalty rises: firstly, the atmosphere and the service are better, and secondly, users are more willing to trust a website or mobile application which is easy to use than one that is of poor quality. If the website reacts in just the same way as the user expects it to, the satisfied customer will come back. Irritated users, however, normally do not have the patience to find out how the site actually works but rather turn to similar sites with a higher usability;
- Creating websites with a high usability will make it easier to use E-Content for multiple devices. This is an increasingly important asset in the world of cross-media, where many business models comprise the

spread and adaptation of information for many different channels and devices.[2]

Usability thus becomes the added value of any application trying to make money in the field of E-Content. Nevertheless, there are also strong arguments that limit the value of usability from an economic point of view. This is especially true if it is not the user who pays for the content but if the revenues are gained from advertisers or sponsors. So clicking through a lot of single pages before reaching the full version of an article linked on an online magazine's homepage may be frustrating for the user, but pay off for the publisher because it multiplies the number of page impressions and thus increases the marketing income. This means that major advancements in usability reflect a high respect for the customer; but usability may be limited by business models that build upon other revenue streams.

1.2 Social Drivers

There is also an obligation to enhance usability because of demands from important stakeholders or even state legislation. This resembles a social change: As long as the Internet and E-Content applications were only used by a small percentage of the population there was not really a need to pay respect to the needs of minorities. Due to the incredible success of new media and the inclusion of ever larger amounts of users, social responsibility makes it necessary to make the Internet accessible to everybody. This is evident e.g. in the Web Accessibility Initiative by the World Wide Web Consortium (W3C). On its homepage, the inventor of the World Wide Web, Tim Berners-Lee, is quoted with the following words: "The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect."[3]

Accessibility here means that people with disabilities are offered the opportunity to access web content easily. In order to achieve this, information must be available for different devices and platforms. This means that the coding has to follow some basic rules, and that any information must be accompanied by metadata. So e.g. websites that follow the guidelines of accessibility must be prepared in such a way that they are compatible with machines for Braille, the writing system for blind people, or that they can be machine-read and transformed into audio output (Mueller 2003).

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[2] For further consideration on cross-media see the chapter "Cross-Media on the Advance" by Jak Boumans in this book.

[3] See http://www.w3.org/WAI

In some countries like Germany, accessibility of websites has already become a legal requirement for online services published by public authorities. Neglecting the interests of stakeholders may lead to public criticism and a loss of reputation. For example, in 2003 the German Federal Employment Agency invested €15 million into a website that should help people to find a new job with just a few mouse clicks. But soon it turned out that the website was neither able to match queries and offerings nor did it fulfil the mandatory accessibility guidelines (Zerfass and Zimmermann 2004, p 5-6). This lead to a major scandal; both the project manager and the head of the institution had to quit their job later on.

2 Methods of Usability Engineering

In an ideal E-Content world, every application would be adapting itself to the needs of any individual user. However, as this is still far from becoming a reality, some effort must be spent on finding out how usability works with different recipients.

Usability researchers and practitioners have taken a systematic approach not only to define usability, but also to develop formal processes and methods to improve it. This field is usually called *usability engineering:* Usability engineering builds on research in cognition science, psychology, computer science, and ergonomics, among others. It is embedded within the larger field of Human-Computer-Interaction (see e.g. Carroll 2002). Usability engineering concentrates on developing and applying tools and concepts for evaluating specific tasks in using digital media applications.

According to a widespread understanding of usability as proposed by Jakob Nielsen (1993), usability is not a single one-dimensional property of a software product but rather consists of multiple components: learnability, efficiency, memorability, less errors, and satisfaction. Usability engineering can then be understood as any method that enhances any of these factors (Lindroth et al. 2001).

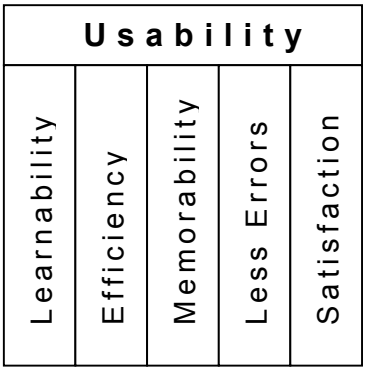

Fig. 1. Five components of Usability (Source: Nielsen 1993)

Successful usability engineering relies to a major degree on the evaluation of prototypes. Basically, one can distinguish two different approaches: user-based (or empirical) evaluation, and expert-based (or analytical) evaluation (Schweibenz and Thissen 2002, p 74). In the first approach, actual users participate in the testing, whereas in the second approach, experts take the place of the users. Normally, empirical testing involving actual users is far more complex and harder to do than involving just experts, but the results are also more reliable.

User-based evaluation methods include:

- *Usability testing with thinking-aloud-protocols:* While using the application (sometimes solving given problems like finding a piece of information or ordering a product), participants in the test will articulate their thoughts aloud. There are no formal requirements as to what they can say, they can rather freely express their opinions and associations.
- *User interviews with or without questionnaires*: Interviews can be included in several formats in various stages in the evaluation process, e.g. after testing an application or also online during the test itself.
- *Focus groups*: Guided group discussions of actual users; the specific gain lies in the reactions of the individual users to the comments of the other participants; they express their opinion on specific problems shown to them.
- *Field studies:* Observing users in the actual contexts of usage.

Expert-based evaluation methods include:

- *Cognitive walkthrough*: Experts analyse a specific feature of the application step by step and evaluate whether the potential users will have the necessary knowledge to handle the task successfully, whether the interface is self-explanatory to first-time users; the focus lies on single features rather than on the overall product.
- *Expert evaluation via heuristics or guidelines*: Experts compare the E-Content application with existing usability guidelines and state the differences; the focus lies on the overall product appearance.
- *Usability audit with design-guidelines:* Analysis of an E-Content application prototype by checking for compliance with design best-practices.

Out of this variety of approaches, *usability testing with thinking-aloud-protocols* is probably the method used most often. Thinking aloud protocols were introduced by Ericsson and Simon (1983) and modified since then for the purpose of evaluating digital applications. Usability testing with thinking-aloud-protocols takes place in so-called *usability labs* where the participants of the test – normally no less than five people – will use the prototype of an application under the observation of usability experts. Through this method, data about cognitive and motivational processes can be assembled as the participants articulate their thoughts all the way through the test. Their articulations are normally recorded. Tests of this kind can be either free or scenario-based, i.e. either the user can do what he or she wants or has to master certain tasks.

Nielsen points out the relevance of this method for usability testing: "Thinking aloud may be the single most valuable usability engineering method. Basically, a thinking-aloud test involves having a test subject use the system while continuously thinking out loud (...). By verbalizing their thoughts, the test users enable us to understand how they view the computer system, and this again makes it easy to identify the users' major misconceptions. One gets a very direct understanding of what parts of the dialogue cause the most problems, because the thinking-aloud method shows how users interpret each individual interface item" (Nielsen 1993, p 195).

However, thinking aloud protocols also have their downsides: in real life, users normally do not articulate aloud what they are thinking when using an application. Thus, this method needs experienced observers that know how to stimulate the participants in order to talk. There are also several variations of this methods now in place that are attempts at overcoming this drawback, e.g. the *Write-Along-Method, Constructive Interaction* or the *Coaching Method* (Yom and Wilhelm 2004, p 27).

In a thorough usability evaluation, there will usually be a mix of methods involved. Usability testing with thinking-aloud-protocols will normally be applied in combination with videotaping the session, but additional components can be added, e.g. devices for *eye-tracking* that record the order in which the user looks at the different parts of the page. This is closely related to tools such as *mouse-tracking* where the movements of the mouse are recorded, following the assumption that mouse movement and attention of the user are interconnected.

Alternative (or additional) to recording the user's behaviour via videocam, one can also involve *logfiles* that are generated by the computer and record the user behaviour. Or one could let the user answer short *online questionnaires* that pop up every now and then during the testing phase. This normally takes place at critical points in the reception process, however, it is also a significant interruption (Yom and Wilhelm 2004, p 28).

Even if the process of usability testing shows whether the product is easy to use or not, this is not the end of usability engineering. Advancements have to be planned and implemented. And usability engineering is a permanent process, not just a singular event. Therefore, it should be implemented into all stages of the E-Content production process (Schaffer 2004) and does not end once the product is released. With changing user behaviour, new technological developments and increasing amounts of content, there is a continuous need to re-evaluate the usability of E-Content applications in given intervals. To name one example: the Internet portal run by the German federal state of Baden-Württemberg[4] received the first-ever national communication award for a public authority website in Germany (Zerfass and Saehrend 2002). Nevertheless, evaluation tests showed that the website slowly lost acceptance because users changed their behaviour, new visual standards emerged, and technical restrictions vanished. Therefore, a major relaunch including extensive usability testing of the new portal was necessary after 48 months (Pfendert and Zerfass 2004).

3 Areas of Application

Usability makes a difference in every area of the E-Content market. Nevertheless, as general conditions differ there are some specific challenges for web usability, mobile usability, and the playability of online games.

[4] See http://www.baden-wuerttemberg.de

3.1 Web Usability

The time for experiments in the World Wide Web is over for the most part. No serious provider of a website can allow himself to create a "fancy" website while at the same time ignoring what the user really wants. Internet business has grown up and is now a mature market.

Some questions need to be dealt with by everybody who designs a new website (Zimmermann 2004, p 9), among them being:

- Are "critical tasks" easy to solve?
- Does the website offer the right functionality?
- Are the layout of the page and the navigation effective?
- Is the navigational wording clear and easy to understand?
- Is the time necessary for downloading files acceptable?

However, nowadays many designers do not consider those aspects. This leads to frustrating experiences for the user. The logfiles of many websites are an evidence for that (Zimmermann 2004, p 10). When the visitor of a website gets irritated by something he or she finds there, the logical consequence is normally leaving the website right away and often never coming back. Few people waste their energy trying to find out how a site works.

Some of the *most common mistakes* include (Zimmermann 2004, p 14):

- Users do not get any motivation to continue clicking through the site;
- The navigational wording is not intuitive;
- The navigation is not visible at once and is also not continued consistently throughout the whole site;
- The user does not get any hint on his or her current position in the site structure;
- The content is not presented adequately to the medium, e.g. texts are far too long and too little structured;
- The site ignores the needs of the target group;
- The user is left alone during critical tasks such as payment procedures or registering for a service.

These problems are especially relevant to online shops. If customers who want to buy a product online encounter either technical problems or cryptical directions during the shopping procedure, they usually abort the

ordering process. In fact, 75% of users shopping online leave the website shortly before paying, even if they already selected the products they want, and only three to five percent of the visitors of a the website of an online shop will turn into customers (Zimmermann 2004, p 17). A lack of usability leads to a lost of revenues.

Because of this, it makes sense to stick to some *usability standards* in order to guarantee a minimum level of user satisfaction. Curiously, most of those rules are well-known, but they are sometimes ignored because providers of websites think that an exotic navigation, colourful effects or obscure wording would make the website more interesting. This is almost never the case. It is no wonder that the most successful sites – such as Amazon, Google, Yahoo or Ebay – are actually quite simple and avoid using anything more than is necessary. For any newcomer website, a quite promising strategy is thus to imitate the leading website of the sector (Bucher and Jäckel 2002). However, this leads to the dilemma that all sites might eventually look the same and none makes a difference from the other. But there are other ways to distinguish oneself, e.g. through the quality of the content and the branding of the site.

In any case, the following guidelines are crucial in achieving a high usability (Zimmermann 2004, p 11–12):

1. *Standardised navigation*
   The navigation is the backbone of every website. Making it as transparent and easy-to-use as possible is mandatory. Intuitively, users expect the site navigation to be either at the left or the top of a website (Zimmermann 2004, p 14).

   There should also be limitations regarding the number of navigational elements such as bullet points or pictures. In any case, there should be less than ten elements in one section. Ideally, the number of elements should be in the range of five to seven items. This is also in accordance with the capabilities of the human brain – we can keep in mind only a very limited number of different elements at the same time.

2. *Consistent visual look-and-feel*
   Regarding the fonts used on a website it is normally the right decision to use as few fonts as possible. It is also recommended to use both upper and lower case instead of just capital letters.

   Different elements of the website such as text and graphics should be clearly separated in order to allow for an easy and intuitive grasping of all the information presented on the page. Texts should in general be short and instructive. Normally, online texts are rather scanned than read from beginning to end. Thus, it is necessary to omit needless words, highlight the important messages, and structure the whole text – e.g. by

using paragraphs and bullet points – so that it fits the needs of online reading.

3. *Simple and clear navigational wording*
   The terms used for navigational purposes are of utmost importance. As they guide the user through the website, anyone has to be able to understand them intuitively. From the user's point of view, obscure terms are a major reason for frustration. If one or two clicks on a navigation button do not lead to the intended result, most users will not give it a third try. Creative ambitions at this point do not pay off for E-Content providers. Wording should be kept as simple and clear as possible. But as even this is a difficult task, some time and usability testing should be spend here.

So while any website should apply these usability standards and design components, the challenge lies obviously in adding an emotional component. Successful websites rely on valuable E-Content and an user-friendly structure, but they also have to be brought to life (Zimmermann 2004, p 13). This is where the innovative part of web design starts.

A major yet unsolved challenge is the implementation of *usability and creativity within new formats and modes of online communication*, especially social software applications like wikis and weblogs (Gillmor 2004; Zerfass 2005). New ways to track user behaviour and optimise communication processes within those applications have to be researched in the near future.

3.2 Mobile Usability

Usability Testing has for a long time been only concerned with the interface of applications for desktop computers, e.g. websites displayed in common Internet browsers. However, with the emergence of a wide number of portable digital devices – from the mobile phone to PDAs and digital cameras – new kinds of usability problems show up. There are no guidelines for mobile usability to the extent that they exist for web usability, just indicators for what works and what does not. Also, usability testing faces a set of new problems.

Mobile devices differ greatly in their *technological setup* from desktop computers. They normally have no keyboard, no mouse, and no large display (Weiss 2002, pp 1-20). Websites, on the other hand, are usually optimised for big screens; thus, navigation becomes more difficult on a mobile device.

Another major difference lies in the *limited energy resources* of mobile devices. Illuminating even a PDA screen for a longer time consumes a lot of battery power. Therefore, E-content applications for mobile devices have to find a middle ground between what usability demands and what technology allows.

From the user's point of view, the focus of attention shifts slightly. For mobile services, the *immediate access to information* is even more important than for websites. In fact, one could claim that a crucial success factor in designing applications for mobile devices is to allow the user to be able to access E-Content quickly and easily. Thus, mobile usability is to a major extent defined by the simplicity of usage, or, in the words of Nielsen, mobile applications "must provide what's required, but no more" (Nielsen 2003).

Regarding the *interface design* of mobile applications there are currently two differing philosophies at battle: the one claims that the current interface design of Personal Computers (PCs) cannot be directly applied to mobile devices as they have their own specific functions and requirements. The other school of thought states that an extended application of PC metaphors to mobile products can have advantages because the users' PC experience can reduce the learning efforts and thus contribute to an intuitive understanding of mobile products. Those two philosophies are represented in the rivalling handheld operating systems Windows CE and Palm OS. Windows follows the philosophy of creating an interface that is very similar to desktop computers, whereas Palm rather tries to separate from the look-and-feel of the desktop computer (Weiss 2002, p 14). While no final answer can be given yet as to which philosophy is more efficient, usability tests indicate that familiarity with the metaphors used does indeed improve the usability of a mobile application (Jeong and Lee 2003).

However, the biggest challenge in improving mobile usability lies in finding a suitable solution for dealing with the *situational context* of mobile usage. While context was obviously only a minor factor influencing the usability of stationary desktop applications, it does matter heavily in the use of mobile technologies.

This problem is especially relevant for *usability testing.* Usability tests designed for evaluating web usability are normally based on an office-like situation or a usability lab where the changing context of mobile applications is left out (Lindroth et al. 2001). Therefore, usability tests need to be developed where the environmental context is included, e.g. where more light would be needed or where there is too much noise in the environment. Lindroth et al. (2001) suggest that there is no real need to develop a whole new method for testing mobile devices, but that rather a combination of different existing methods would do. They propose introducing a

contextual component and a touch of ethnography into mobile usability testing, e.g. with role-playing games.

Some general recommendations for mobile usability based on actual tests are as follows (Duda et al. 2002):

1. *Focus on mobile action*
   Mobile services must allow quick problem solving in a given context, e.g. providing the user with the time and track for the departure of a train when just arriving at the station. So, usability should be optimised according to the context.
2. *Reduce to the max*
   Mobile services should provide just the most important functionality and options; it is quality more than quantity that counts.
3. *KISS – "Keep it simple and stupid!"*
   Every possibility to reduce complexity has to be used.
4. *Personalisation*
   Bookmarks and personalised services can help the user to achieve his or her goals faster and more comfortable.
5. *Localisation*
   The functionality of any localised service already includes the context of usage. However, the user should be able to decide for him- or herself if this is wanted.
6. *Naming to the point*
   Due to the limited size of mobile displays, even more emphasis should be put on the wording of E-Content.
7. *Transparent navigation*
   Navigation wording is of utmost importance because mobile applications still have reduced functionality. Choosing the wrong button an a mobile device is time-consuming and – if there is a UMTS or GPRS internet connection – also costly.
8. *Scrolling instead of clicking*
   When using E-Content on mobile phones, scrolling down a list seems to be more favourable compared to clicking through several serial lists.
9. *Minimise textual input*
   Entering text into mobile devices is very tiresome and should be avoided as much as possible. Radio buttons and other means of letting the user choose with a simple click or by moving the device's scroll wheel are good alternatives.

10. Consistency

Within a mobile application, the same words should mean always the same, e.g. the term "home" should always lead to the initial page. This is difficult to achieve because there is no standard operation system for mobile phones or digital cameras nowadays, and both network operators and hardware manufacturers alter their frameworks continuously.

3.3 Playability

One of the most successful areas of E-Content business is the market for online computer games. A study by PriceWaterhouseCoopers on the US video games market notes that "online and wireless games will be the fastest-growing segments of the market, increasing from a combined US$ 562 million in 2003 to US$ 6.2 billion in 2008" (PwC 2004). Although the market size is lower in Europe, the growth numbers are comparable. In such a fast growing market, also competition is high. Therefore, including usability into the design of the interface of online games may lead to a competitive advantage. In fact, there is even a special term signifying the concept of usability for computer games: *Playability*. This term was already used in the 1980s with regards to computer games, but nowadays one can notice some effort in bringing the insights gained about usability and playability into a unified framework (Ye and Ye 2004).

However, there are also some *barriers* that hinder the application of usability theory to game design. Most of all, there is a culture of disliking anything that comes from academia in the game industry. There is the notion that game designers already know best what is good for a game and what is not, and that people from academia who do not design games themselves cannot possibly offer any helpful insights (Ye and Ye 2004). Nonetheless, those barriers are slowly breaking down as the insight grows that usability and playability are actually two different terms for the same thing. In fact, usability research has a lot to offer to game design, as the concept of playability has the problem of having never really been clear-defined. Thus, useful tools to evaluate and improve playability are missing. Usability research can offer those tools, they just need to be adapted.

Järvinen et al. (2002) make a case for the similarities of playability and usability, and describe playability as "a collection of criteria with which to evaluate a product's gameplay or interaction" (Järvinen et al. 2002, p 17). According to the authors, one can distinguish at least four different components of playability (Järvinen et al. 2002, p 28):

1. *Functional Playability*
   This involves the controls of the game, i.e. the interface that the player is confronted with. Games with a high playability will have simple controls that are easy to master.
2. *Structural Playability*
   This involves the number of options that are offered to the player. In some games it is necessary to give the player a wide range of options in order for him or her to interact meaningfully with the game. This inevitably leads to more complicated and less intuitive controls.
3. *Audiovisual Playability*
   This involves the perspective from which the game world is perceived, e.g. from a first-person point of view or from above.
4. *Social Playability*
   This involves how the game controls allow for usage in different contexts and on different devices.

This list of playability dimensions, however, illustrates that there cannot be simple usability guidelines that hold true for every possible game. Different games ask for different approaches to playability. But especially the first dimension, functional playability, has a lot in common with the interface of a website or a mobile device. In the process of game design, this dimension is being taken care of by the task called *User Interface (UI) Design* (Ye and Ye 2004). UI Design determines how the player controls the game and what he or she actually sees. This significantly influences the player's impression of the game. However, UI Design is much neglected in game design, and even bestselling games will have serious flaws in this respect. This is strongly connected to the fact that only little usability testing is conducted before shipping the game. Thus, applying the tools of usability will probably have a strong effect here.

Up to now, there is still very little evidence which *methods of usability testing* can be applied to game design. Ye and Ye (2004) make some suggestions how methods like heuristics can be applied to usability testing of games. The problem in general, however, is that it is hard to develop prototypes for games.

Nonetheless, the online games industry as a very promising part of the E-Content business will have to put more emphasis on usability. Games will need to be designed from the player's point of view. So far, only very few producers follow this guideline. Rather, games are either created from the engineer's or the designer's point of view and the players just have to accept what they are offered. This position is likely to vanish very soon as it is evident from the developments in web and mobile usability. It also

holds true for game design what can be said about usability in general: once the markets have matured, usability really makes a difference.

4 Towards a New Balance of Commerce and Creativity

Just like any other new market the E-Content business went through an initial phase of experiments, where different formats were tried out and a lot of time was spent on discussing the possibilities that are yet to be discovered. Thus, the interfaces of new digital media applications were seen as a potential form of art in the early phase. In one very prominent book out of this line of thought – "Interface Culture" (1997) – the author Steven R. Johnson notes, "The interface came into the world under the cloak of efficiency, and it is now emerging – chrysalis-style – as a genuine art form" (Johnson 1997, p 242). However, these visions from the beginning of the Internet hype eventually also came down to reality. Users' real demands showed that they are not looking for a piece of art when using any kind of E-Content application, they are rather looking for a service that is easy to use. So if art and engineering can be identified as two different approaches in designing an interface, one can conclude that usability demands for the engineering approach, not the artistic ambition. The engineering approach is also in the best interest of the commercial intentions of E-Content applications. Any interface should be defined in terms of user needs, whereas the intentions of designers often directly conflict with these needs. Most artistic interface experiments have rather failed by now, and it is down to simpler models.

However, although the business rationale asks for the engineering approach that does not mean that creativity is totally banned from E-Content applications. In fact, a lot of creativity is needed to give any website, mobile application, or online game an emotional quality. So while engineering has to secure a stable and strong grounding, there is enough room for creativity in E-Content applications. We have only seen the tip of the iceberg so far.

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