Uncharted Waters? Exploring Experts' Opinions on the Opportunities and Limitations of Serious Games for Foreign Language Learning.

De Grove Frederik
Ghent University
Korte Meer 11
9000 Ghent, Belgium
00 32 9 264 84 76
frederik.degrove@ugent.be

Mechant Peter
MICT-IBBT Ghent University
Korte Meer 7
9000 Ghent, Belgium
00 32 9 264 97 08
peter.mechant@ugent.be

Van Looy Jan
MICT-IBBT Ghent University
Korte Meer 7
9000 Ghent, Belgium
00 32 9 264 84 76
j.vanlooy@ugent.be

ABSTRACT
The use of serious games has seen a remarkable growth in the past decade. This resulted in a substantial number of people with hands-on experience. However, to our knowledge, no research has been performed to harvest this source of information. By means of a survey with closed and open-ended questions, we explore the opinions of 50 serious game and CALL experts on serious games' potential for foreign language learning. The first part of the paper discusses attitudes on serious games and learning. In general, we discern a rather strong belief in the potential of learning games. The second part of the paper zooms in on foreign language learning through games whereby some remarkable results emerge on the possibilities and limitations of foreign language learning games. Next, we discuss respondents' opinions on issues regarding the integration of foreign language learning games in a classroom context and on their design. The final part of the paper elaborates on a SWOT analysis of foreign language learning games resulting in a nuanced view on the opportunities and limitations of foreign language learning games. As a consequence, this paper not only identifies topics which bear a broad consensus among experts, but also shows that strong differences in opinion exist.

Categories and Subject Descriptors
K.3.1 [**Computers and Education**]: Computer Uses in Education – *computer-assisted instruction, computer-managed instruction, distance learning.*

General Terms
Performance, Design, Theory.

Keywords
Serious Games, Foreign Language Learning, Gaming, Experts, Qualitative, Quantitative, Survey, SWOT, Opportunities, Limitations.

1. INTRODUCTION
Although video games have always been used to educate, train and convey messages [20], the past decade has seen a remarkable and growing interest in serious games from commercial, public and academic actors alike. Notwithstanding the ontological discussion regarding serious games, their definition and taxonomy [20] we consider serious games as video games that are used with the aim of educating in the broadest sense. In that respect, foreign language games are serious games that are consciously employed to teach a foreign language. It should be noted that the focus lies on the way a specific game is used and not on the developer's intention. As a consequence, not only video games that are designed with foreign language learning in mind are considered language learning games, but *any* video game that is used with the intention to teach a foreign language.

As the number of people and organisations that have used serious games has steadily grown over the past several years, it can be assumed that a lot of expertise is available in the field. However, to our knowledge no research has been performed to tap this information resource. By acquiring input from people that have hands-on experience with serious games or e-learning, we want to explore existing possibilities and limitations regarding serious games. Relevant existing academic literature on serious games and computer assisted language learning (CALL) will be used as a framework to discuss our research results.

2. LITERATURE ON SERIOUS GAMES
Research on gaming technology and learning increasingly argues that the structure of games (and the way they require people to play) create de facto effective learning environments [18] because games challenge and support players to approach, explore and overcome problems. Moreover, they offer players the capacity to try out alternative courses of action and afford players to experience the consequences of these alternatives. Players rarely have to sit down and read a manual before they can start playing; they learn by doing. This constant process of practice and interaction gradually reveals the rules within the game. In the FutureLab handbook 'Games and learning' Richard Sandford and Ben Williamson [22] highlight the positive characteristics of

games in a learning context. They mention the challenging and adaptable gameplay, the affordances for feedback and 'assessment' (immediate feedback on performance, notification when goals are reached) and the social and collaborative nature of games.

In another report on game-based learning, Berrin Dogusoy and Yavuz Inal [4] highlight the benefits of game play: games keep the motivation high, they pull the attention of the learners, they adapt to work in a group easily and they force learners "(…) to think more critically and detailed about the reasons and consequences of events". Furthermore, serious games are played and learned through digital content. Digital content has certain characteristics that afford a range of activities and processes not possible in the analogue realm. For example, based on so-called 'exhaust' [15], 'drive-by' [9] or 'read-wear' data [7, 19], content and learning processes can become personalised, users' models can be enhanced, usage patterns can be predicted and feeds and recommender systems personalized. Serious games can use these data, often created implicitly and as a side effect, to harness collective intelligence of other users. Furthermore, the internet, as an information and communication system, mediates globally disseminated processes of language development and engagement [23] thus becoming one of the most important areas for communicative activities. It is therefore not surprising that Milton [17] talks about the potential use of the Internet in language learning. He discerns two main advantages. The first is the possibility for interaction with other speakers of the language. The second advantage is the potential use of the World Wide Web as a resource for teaching materials.

In summary, serious games are seen as de facto learning environments that are adaptive, absorbing and immersive. They also provide feedback and assessment and allow for personalised learning. Furthermore, they place the learner in an active role, stimulating him/her to think more critically and they lend themselves to collective and social use. They challenge and support learners and implicitly motivate them.

However, although serious games offer new possibilities, they also have certain limitations to be reckoned with. Clark, cited in Mitchell and Savall-Smith [18], points to a number of risk factors that can impede learning. He mentions that intended learning outcomes and game objectives might conflict and that games can distract from the learning content. Moreover, the required 'suspension of disbelief' can negatively influence the learning processes. Also, certain socio-demographic groups may be excluded and 'hijacking' gaming as an educational technology might result in aversion towards the medium. Mitchell and Savall-Smith [18] add that the games might be 'pitched' at the wrong level of user interest and that the duration, the design (on an aesthetic or technological level) or gender-specific features of some games might endanger the final objective of the serious game. Richard Sandford and Ben Williamson [22] point to similar problems that may hinder learning. James Milton [17] elaborates on formative assessment and points to an important problem connected to technology-based language learning – and by extension – also connected to the context of foreign language learning through serious games. Milton refers to the fact that in complex language tasks an assessment by a human teacher is needed. Current computer software lacks the ability to assess (and provide feedback to) complex language use (e.g. an essay).

Furthermore, computer-mediated communication and the use of digital technologies for learning might hinder foreign language learning as not everybody has access to these information technologies, see e.g. Grant McCracken [15] and Amanda Lenhart et al. [12]. Moreover, the manner in which people use these technologies to participate can differ drastically, see e.g. James Milton [17] and Matthew Hindman [8]. For some users, digital technologies are an increasingly rich, diverse, engaging and stimulating resource, for others they remain a narrow pool of little significance [14].

Another issue related to computer-aided foreign language learning is touched upon by Egenfeldt-Nielsen [5] who mentions the need for teacher intervention. A consistent finding in the literature is that teachers play an important role in the facilitation of the educational use of computer games. Some of these objections return in the report 'Moving learning games forward: obstacles, opportunities and openness' by the Education Arcade (MIT). In their list of barriers to the adoption of learning games, Klopfer, Osterweil and Salen [10] mention issues that might hinder the sustainability of serious games in education. In particular, they refer to the 'fickleness' of gamers (the changeable and capricious nature of gamers); the speed of change in gaming technology and ICT in general; and the ongoing efforts that are needed to maintain and support the technological infrastructure. Sandford and Williamson [22] refer to similar threats and also point to the problem of the teacher's expertise (some teachers are not familiar with games and may fear a 'loss of authority'). Finally, Milton [17] notes that it is a common feature of technology-based language learning materials that they are technology-led rather than pedagogy-led: "Technology-led materials rarely provide the language practice needed for progress, and pedagogy-led materials are either so technologically simple, or tedious, that they likewise fail to provide the desired result".

3. METHOD

3.1 Survey

A survey based on our literature review (cf. supra), was constructed. As video games have a broad geographical reach, it was decided to opt for an online measurement in order to transcend local boundaries. The survey was launched and hosted at a secure third party for 1,5 months. It consisted of 38 questions of which 20 were applicable to e-learning professionals and experts. Experts were described as having expertise in serious games, CALL networks, blended learning or related topics. Based on this description, respondents decided if they qualified for being an expert. The survey included a general section divided in four blocks measuring (a) the respondent's attitude towards gaming, (b) a series of statements on a five-point Likert scale about the potential of serious games for education in general and foreign language education in particular, (c) four open questions asking about the strengths, weaknesses, threats and opportunities of serious games for foreign language learning and (d) a branching question to detect the various target groups. The questions specifically aimed at experts and professionals addressed issues on the implementation of games in a classroom setting, on the design of serious games for foreign language learning and a set of statements about the opportunities and limitations of language learning games. A final section of the survey gathered socio-

demographic data on all respondents and allowed the respondents to give some final remarks in an open text field.

3.2 Data Processing

The survey contained closed as well as open ended questions. The former were processed quantitatively using statistical software (SPSS v.18.0.1). Due to constraints posed by the use of an online survey (e.g. self selection) and the rather limited amount of respondents (cf. infra), data obtained should be considered explorative rather than generalizable to a larger population [1]. Open ended questions regarding the strengths, weaknesses, opportunities and threats (SWOT) were processed qualitatively in different steps through a deductive coding process [16] involving descriptive and interpretative coding [13]. To ensure validity, coding was performed by two different coders. This allowed us to estimate inter-reliability using Cohen's Kappa [3]. Qualitative coding pertained to our SWOT analysis and resulted in four different Kappa coefficients: Strengths scored 0.74, Weaknesses scored 0.86, Opportunities scored 0,76, and Threats scored 0.69. A Kappa-coefficient lower than 0,45 indicates few similarities between the coders, a Kappa-coefficient between 0,45 en 0,75 indicates that the coders agree moderately and a Kappa-coefficient higher than 0,75 refers to high agreement between the coders [11].

3.3 Participants

An email campaign inviting people to participate in our survey was launched on December 15, 2009. Respondents who did not answer the survey were sent a reminder email a week after the initial invitation. Respondents who partially filled out the survey were also sent a reminder email, urging them to complete the questionnaire. Additionally, in the first two weeks of 2010, numerous messages were posted on various online communities-of-practice and communities-of-interest on (serious) gaming and CALL, inviting the users of these platforms to participate in our survey.

In total 220 respondents filled out the survey of which 126 completed all questions. Of the 143 participants reporting on their position, 50 were working as experts or e-learning professionals. 18 of them were experts in e-learning; 12 of them specifically mentioned language learning. 14 respondents were active as designers or developers while seven were active as serious games researchers. The remaining 11 respondents held expertise in curriculum development, metadata for learning objects, education policy and management for e-learning. 47 experts completed the questionnaire.

4. RESULTS

All closed questions were presented on five point Likert scale items ranging from 'Strongly Disagree' to 'Strongly Agree'. To enhance readability, we will be using percentages in our text. In using percentages, we narrow down our answer categories from five to three: 'Disagree', 'No Opinion' and 'Agree' whereby 'Disagree' consists of 'Strongly Disagree' and 'Disagree'; the same goes for 'Agree'. However, means and standard deviations of our five point Likert scale items will be shown in a table following the results provided. Including percentage based as well as average results enables a more balanced view on the outcomes. Moreover, standard deviations will be used in our discussion in section 5 to identify statements on which consensus is lacking.

4.1 Serious Games and Learning

A first set of questions gave a series of statements on the opportunities and limitations regarding serious games and foreign language learning. Remarkable is the strong belief in the potential of serious games (84%). Serious games are seen by a majority of experts as a new (86%), active (74%) and personalised (70%) way to learn in an immersive (60%) and implicitly motivating (70%) environment capable of providing feedback (70%). Furthermore, many of the experts disagree when stating that serious games denigrate the learning process (78%) or that they distract from the learning content (62%). When comparing between experts that identified themselves as gamers (N=19) versus those that identified themselves as non-games (N=31), an independent samples T-test revealed that only the opinion on the feedback ability of games differed significantly (M=4.16 vs M=3.71, sig. $p < 0.05$).

Notwithstanding the strong belief in the potential of serious games, there is no clear consensus as to whether serious games are more cost-effective (40% had no opinion). The same goes for games posing possible problems regarding formative assessment (46% had no opinion). Even more disagreement exists on the statement that serious games are too often technology driven while they rarely provide the practice needed for making progress in learning. 32% disagrees while 40% agrees, leaving 28% with no opinion. Finally, when stating that serious games are too often learning-driven providing too little fun, 48% has no opinion while only 26% disagrees.

On the downside, attention is drawn towards the fact that 58% agrees with the statement that serious games are often hindered by practical constraints such as hardware availability and that serious games exclude certain groups (6% disagrees).

Table 1. Attitudes towards Serious Games (N=50)

	Mean	SD
The potential of serious gaming for education in general is enormous.	4.16	0.792
Serious games enable players to learn in a new way.	4.1	0.614
Serious games place learners in an active role, stimulating them to think critically.	3.88	0.799
Serious games are ideal to provide feedback to a learner.	3.88	0.689
Serious games allow for personalised learning.	3.82	0.629
Serious games implicitly motivate a player to learn	3.78	0.764
Serious games are absorbing and immersive.	3.68	0.683
Serious games are often hindered by practical constraints	3.66	0.848
Serious games exclude certain groups of people.	3.18	0.873
Serious games are too often technology-driven and rarely provide the practice needed for making progress in learning	3.14	1.069

Serious games are too often learning-driven and provide too little of an enjoyable game experience.	3.08	0.877
Language learning through serious games is less expensive than a traditional course.	3.04	1.106
Serious games pose problems with regards to formative assessment.	2.96	0.856
Serious games often take too long to play in a classroom setting.	2.96	0.781
Serious games distract from the learning content.	2.36	0.851
Serious games denigrate the learning process.	1.96	0.755

4.2 Foreign Language Learning Games

Our second set of questions explored a variety of topics aimed specifically at foreign language learning. Topics discussed are opportunities and limitations on foreign language learning games and a set of statements on their design.

4.2.1 Opportunities and Limitations

Like for serious games in general, there is a strong belief in the potential of foreign language learning games (92%). They are seen as useful tools to practice skills (92%) as well as grammar, vocabulary and key phrases (90%). Furthermore, they are seen as a fun (78%) environment in which the learner is immersed in the target language (74%).

When comparing between experts that identified themselves as gamers (N=19) versus those that identified themselves as non-games (N=31), an independent samples T-test revealed that only the opinion on the potential of foreign language learning games differed significantly (M=4.47 vs M=4.0 sig. $p < 0.05$). Although this difference is statistically significant, it has little practical consequences as both groups score quite high. What is more remarkable is that this was the only difference found between gamers and non-gamers.

Although the general attitude towards language learning games is a positive one, only 28% agrees with the statement that language learning games are more effective than traditional learning courses (while 58% has no clear opinion). This result is particularly interesting since little coherent and scientifically justified research has been performed to assess actual effectiveness [2], let alone that effectiveness has been compared to other learning methods. This is all the more remarkable when taking into consideration the strong belief in the usefulness of language learning games to practice skills and repetitive tasks, and to a lesser extent to practice more complex language tasks (50%).

Table 2. Attitudes towards Language Learning Games (N=47)

	Mean	SD
Serious games are useful to practise skills (e.g. listening skills).	4.22	0.582
The potential of serious games for language learning is enormous.	4.18	0.748
Serious games are useful to practise grammar, vocabulary and key phrases.	4.16	0.584
Serious games immerse the trainee in the target language.	3.94	0.74
Language learning through serious games is fun.	3.9	0.58
Serious games are useful to practise more complex language tasks (e.g. chairing a meeting).	3.52	0.789
Language learning through serious games is more effective than the traditional language course.	3.2	0.904

After exploring this series of general statements concerning language learning games, we focussed on a set of characteristics typical for video games in a foreign language that could be useful for language learning.

Providing a game in a foreign language is seen as interesting for learning just because they expose learners to that language (72%). Furthermore, if those games stimulate users to produce language, they become interesting because of the possibility to practice language production by themselves (70%). They also allow users to hypothesize about which language is going to be produced in the game when they perform a certain action which they are familiar with in real life (68%). Other benefits are seen in the possibilities of implementing repetitive language tasks (57%) and in a task based learning approach so that users can learn by doing meaningful tasks (72%) (see e.g. Rod Ellis [6]).

It is also interesting to note that 57% agrees with the statement that existing entertainment games can be perfectly integrated in a language learning course. The same goes for multiplayer online games or virtual worlds because they contain content in many foreign languages (64%), because they serve as communities of players from various linguistic backgrounds (70%) and because they expose learners to types of language use which they are not familiar with (64%). However, when using games that are not specifically designed for language learning, teacher intervention to correct errors is more strongly preferred at the end of a specific game task (49%) than intervening immediately (9%) or not intervening at all (12%).

When it comes to framing games in a broader context, there is a strong consensus that language learning games should be preceded by careful planning (80%) and should be embedded within a briefing and debriefing session (89%).

Table 3. Characteristics with Potential for Language Learning (N=47)

Digital games in a foreign language…	Mean	SD
which involve production of language are interesting because they allow learning to practice language production	4.02	0.531
are interesting for learning, because they allow for a task based approach, promoting doing meaningful tasks	3.94	0.87
which involve production of language are interesting because they allow for feedback	3.83	0.789

Digital games in a foreign language…	Mean	SD
are interesting for learning, simply because they expose learners to language.	3.81	0.77
which involve production of language are interesting because they allow to hypothesize about which language is going to be produced	3.66	0.788
that contain a lot of repetitive language are interesting for learning	3.57	0.853

Table 4. Implementation Possibilities (N=47)

	Mean	SD
Using games in class needs to be accompanied by briefing and debriefing sessions in class	4.32	0.663
Using games in class needs to be preceded by phases of careful planning and objective setting on the teacher side	4.23	0.698
It is possible to integrate massively multiplayer online games or virtual spaces into language learning programmes because they function as communities of players from various backgrounds	3.74	0.736
It is possible to integrate massively multiplayer online games or virtual spaces into language learning programmes because they learners to kinds of languages which they are not usually familiar with	3.62	0.898
It is possible to integrate massively multiplayer online games or virtual spaces into language learning programmes because they contain content in many foreign languages	3.51	0.831
It is perfectly possible to integrate existing entertainment games into language learning programmes	3.38	1.012
If a teacher uses an existing game, not specifically designed for language learning, that involves learner production, s/he should intervene at the end of a specific game task	3.38	0.848
If a teacher uses an existing game, not specifically designed for language learning, that involves learner production, s/he should intervene immediately when learners produce errors	2.6	0.876
If a teacher uses an existing game, not specifically designed for language learning, that involves learner production, s/he should not intervene at all	2.4	0.901

When addressing the limitations of language learning games, only 29% sees a trade-off between gaming and language learning because there is too much focus on play. Even fewer respondents agree on whether games can be confusing due to their non-linear and explorative nature (6%). Furthermore, interactivity is not perceived as creating a cognitive overload (4%) while 16% agrees that language learning games cannot match the complexity of language learning at all. Finally, 15% thinks that language learning through conversation simulation will only be effective when speech technology is perfected.

Table 5. Limitations (N=47)

	Mean	SD
There is a trade-off between language learning and playing	2.85	1.021
Claims about the need for designing serious games specifically for language learning are too optimistic. They are no match for the complexity of language learning	2.49	1.101
Only when speech technology is perfected, language learning through conversation stimulation will be acceptable	2.47	1.08
The nonlinear and exploratory nature of many games is too confusing for foreign language learning.	2.13	0.875
The interactivity of games inherently creates cognitive overload, which impedes language learning.	2	0.834

4.2.2 Design

When asked which area games for language learning should target, experts prefer the acquisition of skills (59%) above that of knowledge such as grammar and vocabulary (28%). Moreover, when asked if receptive (listening or reading) or productive (writing or speaking) skills should be trained, a slight majority prefers the latter (53%) above the former (40%). Also, implicit (74%) and task-based (68%), approaches are preferred in which the learner plays an active role (66%). Furthermore, a clear preference exists for games that enable interaction with others (77%). Results are less clear when asked if language learning games should favour gameplay over learning. About 28% has no opinion while 45% agrees with this statement.

Table 6. Design Specifications (N=47)

Digital games for language learning….	Mean	SD
should provide opportunities for interaction through language and collaboration with peers in the game	4.13	0.824
can be interesting for all proficiency levels, if learning objectives and learner characteristics are taken into account	4.06	0.791
are especially interesting for implicit approaches to foreign language teaching	3.94	0.791
should contain language which is adapted to the proficiency level of the learner, or just above it.	3.89	0.84

should employ a taskbased approach, i.e. take authentic tasks as the starting point for language learning.	3.89	0.914
are especially interesting for teaching language which requires learners to do things in a (simulated) world, such as speech acts	3.81	0.947
should be especially targeted at the acquisition of skills (receptive as well as productive).	3.62	0.848
should also bear attention to formal aspects of a foreign language, even if the main focus is on meaningful play.	3.57	0.801
should be especially targeted at productive skills (speaking and/or writing).	3.49	0.997
should be especially targeted at receptive skills (listening and/or reading).	3.34	0.915
are especially interesting for explicit approaches to foreign language teaching	3.21	0.806
should favour gameplay over learning, if learners feel that attention to formal aspects of the foreign language is too intrusive for playing the game	3.21	1.041
should be especially targeted at the acquisition of knowledge (grammar, vocabulary, ...).	2.85	1.021
should avoid fantastic settings (medieval, extraterrestrial, …) because these settings have no connection whatsoever to the real world	2.49	1.061
should contain simplified (i.e. nonauthentic) language.	2.47	0.83
should take the units of a linguistic syllabus (e.g. “the as the starting point for game objectives and tasks	2.38	0.768

4.3 Strengths, Weaknesses, Opportunities, Threats (SWOT)

Apart from the fixed, scale-based questions discussed above, we provided room for a less structured way of providing opinions. Based on a SWOT framework, four open questions were presented. The SWOT analysis technique is often employed in business analysis for identifying factors influencing a company's position in the market. However, the SWOT framework can also provide significant value outside of the business domain as it is essential aim is to assess internal (Strengths and Weaknesses) and external (Opportunities and Threats) elements of the studied subject c.q. language learning games.[1] It should be noted that a SWOT analysis is not as straightforward as it seems. Categorization is a subjective process and depending on how they are framed, strengths can also be weaknesses (and vice versa) while opportunities can also be threats. Furthermore, the boundary between internal and external can be vague and subject to interpretation and discussion. Despite these shortcomings, we think a SWOT approach can be used as a framework to structure opportunities and limitations which can serve as a starting point for further discussion.

In total, 209 items were retained of which 84 were categorized as strengths, 21 as weaknesses, 33 as opportunities and 77 as threats.

4.3.1 Strengths

Strengths were analyzed and after discussion, eight different categories emerged (see Figure 1): Fun & Challenge (N=16), Immersive (N=13), Stimulates Learning (N=26), Interactive (N=5), Personalised (N=13), Contextualized (N=6) and Other (N=5). These findings largely complement the results obtained from our closed questions. The strength of games lies in their being fun and challenging and providing an immersive and realistic context in which there are myriad possibilities for learning. Those learning possibilities range from ‘drilling’ vocabulary exercises to practicing listening skill. Again, the positive attitude towards the potential of serious games is reflected by the conviction that serious games offer an opportunity to stimulate learning. Another important strength is the fact that games can be adapted to the proficiency level of the user and that they are able to provide instant feedback.

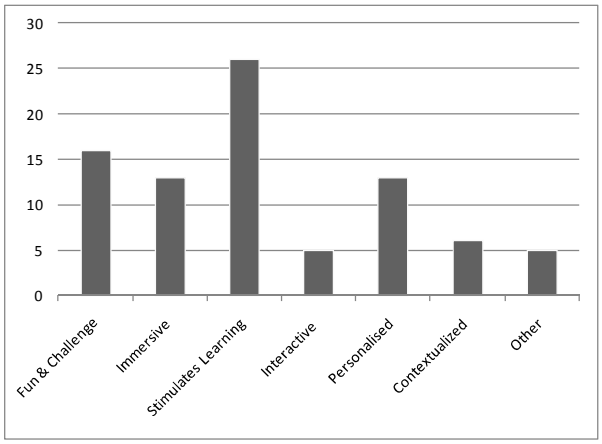

Figure 1. Strengths.

4.3.2 Weaknesses

Four weakness categories were identified (see Figure 2): Technical Limitations (N=12), Game/Learning Balance (N=3), Contextualized (N=5) and Other (N=1). Technical limitations almost exclusively refer to the fact that until now, games cannot adequately incorporate speech recognition while it is pointed out that training of oral skills is an important part of language education. It is interesting to see that context is seen as a strength as well as a weakness. Some say video games offer the opportunity to contextualize the learning experience while others contradict this view by stating video games only provide a synthetic environment. The Game/Learning Balance refers to the oxymoron of fun and learning [21]. Although the fun aspect clearly is one of the strengths of serious games, it might also

[1] On a side note we wish to point out that to minimize influence from the closed questions, our SWOT questions were presented before any of the relevant closed questions.

become a weakness if the proper balance is lost. This goes for serious games that fail to provide a fun experience, but also the other way around.

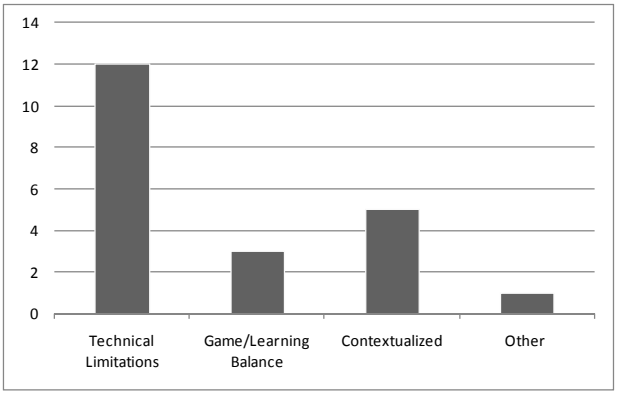

Figure 2. Weaknesses.

4.3.3 Opportunities

In total, five categories emerged (see Figure 3): Digital Age (N=5), Flexibility (N=13), Interaction (N=7), Positive Attitude (N=6) and Other (N=2). Digital Age refers to the fact that users, which are mainly seen as young, are digital natives and have the skills and equipment ready to use serious games. Flexibility means that video games can be used anywhere and at any time thus opening opportunities by overcoming temporal and spatial limitations. Finally, changing attitudes towards games might open up extra possibilities. However, as we will see next, attitudes work in both ways.

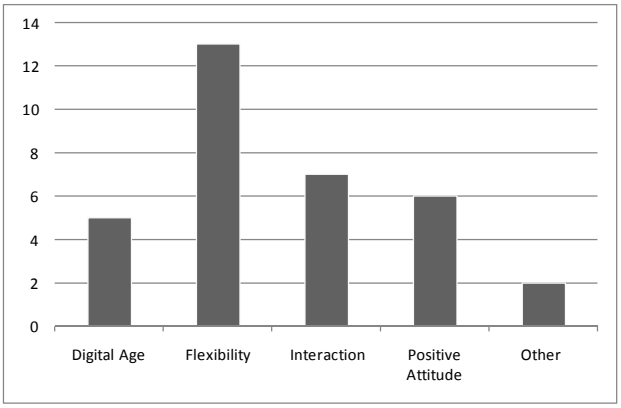

Figure 3. Opportunities.

4.3.4 Threats

Six Threat categories were identified (see Figure 4): Technical Obstacles (N=10), Negative Attitude (N=14), Wrong Use (N=11), Financial Obstacles (N=10), Bad Game Design (N=25) and Other (N=7). Technical Obstacles mainly pertain to the fact that not everybody is ready to comply with the logistic requirements (hardware, software, internet) required to play video games. Again, we can see this category as the other side of the Digital Age. In how far the latter refers to the potential of individuals and the former to institutions such as schools or language learning institutes remains unclear. Although only indicative, Negative Attitude was strikingly more present than Positive Attitude. Most experts referred to the possible negative attitude of teachers while a minority mentioned a possible negative attitude of users. An often recurring remark was that of the costs that are involved when developing a video game. Finally, several opinions were related to that fact that serious games are often badly designed. This pertained to game specific design issues (e.g. graphics, sound…) as well as to bad integration of learning content into a game context (e.g. no clear feedback, use of preformatted language, lack of language expertise in design team).

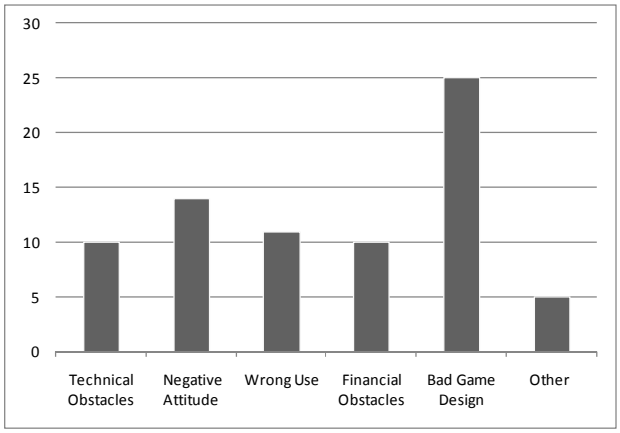

Figure 4. Threats.

5. DISCUSSION/ CONCLUSION

In exploring the opinions of e-learning professionals and experts, we acquired a set of results that confirm several and mostly positive views on serious games and learning. Our respondents have a firm belief in the potential of serious games in general and language learning games in particular. This potential includes features which are seen as inherent to (good) video games such as fun, immersion, personalisation and the ability to provide feedback. These characteristics serve as stimulators to achieve a variety of learning goals in a pleasant and implicit way. On the downside some potential problems were identified such as bad game design, wrong usage and the balance between fun and learning. Furthermore, negative attitudes and cost issues could prevent the use or development of good serious games altogether. These findings largely correspond with insights gained from our literature review.

It should however be noted that up to now, we have only scratched the surface without really discussing the tricky parts of using serious games. Notwithstanding the general positive attitude of our respondents that might probably, at least partly, be attributed to self-selection, our acquired data contains some issues which are open to discussion. More specific we will zoom in on results that have a standard deviation of 1 or more, indicating opposing opinions.

In total, 9 questions yielded results that had a standard deviation larger than 1. Four of those questions refer to the tension between how much a serious game should be a video game and how and to what extent learning content should be implemented. For instance, the statement that serious games are often too technology-driven while rarely providing the practice needed for making progress in learning produces a strong variation in the answers provided

(SD=1,069). This is also reflected by opposing views when it comes to integrating existing entertainment games into language learning programmes (SD=1,012) and the strong variation in answers when stated that there is a trade-off between language learning and playing (SD=1,021). The same disagreement returns when stating that gameplay should be favoured over learning (SD=1,041). Loosely connected is the disagreement when it comes on the avoidance of fantastic settings (and thus irrelevant context) (SD=1,061).

Apart from disagreement regarding the game/learning balance, three statements concern language learning in specific. A first one pertains to the targeting of knowledge acquisition such as grammar and vocabulary (SD=1,021). Furthermore, there is no consensus with regard to the questions of whether serious games can be matched with the complexity of language learning (SD=1,101) and whether learning conversations through video games is even useful at all as long as there is no appropriate speech technology (SD=1,08). It is clear that these findings essentially show that there is no clear view concerning the applicability of language learning through games. This view is strengthened if we look back at the perceived strengths of language learning games. The category 'Stimulated Learning' holds such a diversity of potential learning possibilities that it seems there are as much views on uses for language learning games as there are experts.

When putting all these findings together, we come to an image in which there is on the one hand a basic belief in the use of serious games and a clear look on the framework in which they should be embedded while on the other hand, only little coherent knowledge seems available about how these video games should look and to what extent they can be used to learn languages. It is clear that research on serious games for language learning is still in its infancy and that issues regarding learning content and its integration are important topics for future research.

6. LIMITATIONS AND FUTURE RESEARCH

The main limitation of this research results from the limited response we have received on our survey in combination with self-selection. This can possibly partly explain the particular positive attitude towards serious games. Therefore, findings should be handled with care and cannot be generalised. Nevertheless, our exploration yielded some interesting results and the use of a SWOT analysis required our respondents to come up with possible obstacles as well, thereby balancing our findings.

We want to emphasize that this research is only a stepping stone to execute more thorough research on topics which have emerged during our exploration. A major finding concerned the extent to which video games can be used for learning foreign languages. Future research should therefore bring together pedagogic as well as design experts to find a proper balance between the specific characteristics of foreign language learning and how they can be integrated in the design of a game. In line with the former, another major finding shows that more research is required to find the right balance between fun and learning. It goes without saying that in search of this balance, the focus will need to shift from experts to users as only user research can provide the initial and necessary input.

7. REFERENCES

[1] Billiet, J., Waege, H. (Eds.) (2005). Een Samenleving Onderzocht. Methoden van Sociaal-wetenschappelijk Onderzoek. Antwerpen: De Boeck nv.

[2] Blunt, R. (2009). Do Serious Games Work? Results from Three Studies. Elearn Magazine [Electronic Version] from http://elearnmag.org/subpage.cfm?section=research&article=9-1.

[3] Cohen, J. 1960. A coefficient of agreement for nominal scales, Educational and Psychological Measurement. 20, 1, 37–46.

[4] Dogusoy, B., & Inal, Y. (2006). Game-based learning through online computer games. Ankara, Turkey: Department of Computer Education and Instructional Technologies, Faculty of Education Middle East Technical University.

[5] Egenfeldt-Nielsen, S. (2006). Beyond Edutainment: exploring the eductional potential of computergames. University of Copenhagen, Copenhagen, DK.

[6] Ellis, R. (2003). Task-based language learning and teaching. Oxford Applied Linguistics. Oxford: Oxford University Press.

[7] Hill, W. C., Hollan, J. D., Wroblewski, D., & McCandless, T. (1992). Edit Wear and Read Wear. Paper presented at the ACM Conference on Human Factors in Computing Systems (CHI'92), New York City, New York.

[8] Hindman, M. (2009). The myth of digital democracy. Princeton: Princeton University Press.

[9] Kedrosky, P. (2005). Drive-By Data & Web 2.0 [Electronic Version] from http://paul.kedrosky.com/archives/2005/06/driveby_communi.html.

[10] Klopfer, E., Osterweil, S., & Salen, K. (2009). Moving learning games forward.

[11] Lauf, E. (2001). '96 nach Holsti' Zur Reliabilität von Inhaltsanalysen und deren Darstellung in Kommunikationswissenschaftlichen Fachzeitschriften. Publizistik, 46(1), 57-68.

[12] Lenhart, A., Sousan, A., Smith, A., & Macgill, A. R. (2008). Writing, technology and teens [Electronic Version]. Pew Internet & American Life Project from http://www.pewinternet.org/pdfs/PIP_Writing_Report_FINAL3.pdf.

[13] Lewins, A., & Silver, C. (2007). Using software in Qualitative Research.London: Sage Publications.

[14] Livingstone, S., & Bober, M. (2005). UK children go online. London: Economic and Social Research Council.

[15] McCracken , G. (2007). How social networks work: the puzzle of exhaust data [Electronic Version] from http://www.cultureby.com/trilogy/2007/07/how-social-netw.html.

[16] Miles, M., & Huberman, A. (1994). Qualitative data analysis: an expanded sourcebook. London: Sage.

[17] Milton, J. (2006). Literature review in languages, technology and learning. Bristol, UK: FutureLab.

[18] Mitchell, A., & Savall-Smith, C. (2004). The use of computer and video games for learning. A review of the literature.

[19] Nielsen, J. (2006). Participation Inequality: Encouraging More Users to Contribute [Electronic Version] from http://www.useit.com/alertbox/participation_inequality.html

[20] Ratan, R., Ritterfeld, U. (2009). Classifying Serious Games. In Ritterfeld, U., Cody, M. Vorderer, P. (Eds.), Serious games: Mechanisms and effects. New York: Routledge.

[21] Ritterfeld, R., Cody, M., Vorderer, P. (2009). Serious Games: Explication of an Oxymoron. In Ritterfeld, U., Cody, M. Vorderer, P. (Eds.), Serious games: Mechanisms and effects. New York: Routledge.

[22] Sandford, R., & Williamson, B. (2005). Games and Learning. A handbook. Bristol, UK: FutureLab.

[23] Thorne, S. L. (2008). Computer-mediated communication. In N. Hornberger & N. Van Duesen-Scholl (Eds.), Encyclopedia of language and eduction (Vol 4) (pp. 325-336). New York: Springer.