The Creation and Implementation of a Rubric for the Analysis of Language Learning and Teaching Videogames.

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Table of Contents

Abstract

Language teachers, as with other members of the profession, are constantly being reminded of the importance of incorporating the use of technology into their lessons. Videogames potentially offer great opportunities to engage language students in unique and powerful ways. That said, many of the titles which are currently available are based on outdated grammar-translation and behaviourist principles, and it may be difficult to discern which titles are of most use in the classroom setting. This thesis aims to create and test a rubric (The Language Education Videogame Evaluation Rubric, or LEVER) which will be of two-fold benefit to the domain of language teaching and learning. Firstly, it will assist educators in the selection of titles which will be appropriate for use in their own professional contexts. Secondly, it will offer to game designers a list of characteristics which should be incorporated into language education titles. This thesis will discuss both the ludic (gameplay) and pedagogical aspects of language learning and teaching videogames. Both of these aspects are integral to the nature of high-quality, educational titles. Four titles which have been created to teach a foreign language will then be analysed in light of the LEVER, both to test the games for quality and the rubric itself for ease-of-use and rigour.

Statement of Candidate

I certify that the work in this thesis entitled "The Creation and Implementation of a Rubric for the Analysis of Language Learning and Teaching Videogames" has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research, and that all information sources and literature used are duly referenced in the text.

Douglas Alexander Agar.

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Language Videogame Rubric

Introduction: Videogames, no longer the preserve of antisocial nerds in their bedroom

Videogames, once seen as the preserve of adolescent boys, are now part of mainstream culture. The Digital Australia 2014 report by Australian Policy Online (Brand, Lorentz, and Mathew, 2014), as conducted for the Interactive Games and Entertainment Association by Bond University, shows the development of this gaming culture since 2005, concluding that "computer games (are) a popular medium that (has) become not only normalised, but a medium valued by Australians of all ages." In doing so, they have "provided quantitative empirical data using established social and market research practice" (p. 3). In summary of their findings, 65 per cent of Australians play videogames. 76 per cent of gamers are over the age of 18, and the average age of gamers is 32. 47 per cent of gamers are female. 19 per cent of Australian gamers are over 51. Perhaps most relevant for educators is the finding that 98 per cent of homes with children have computer games, and that 81 per cent of mothers and 83 per cent of fathers play videogames. It must be noted that, of course, there are now many more means to play videogames than previously, with many older members of society only beginning to play since the turn of the millennium. Nonetheless, it is clear that videogames are almost omnipresent in Australian homes, and are a valued medium of entertainment for those of school-going age. This thesis will argue that this is not taken advantage of in our educational settings: while schools are adopting technology in a number of ways, as Anderson (2012, p. 1) states: "Teachers are increasingly enthusiastic and confident about using ICT in teaching and schools are increasingly supportive; but there is this 'naughty child' sat in the corner and that's computer games."

This thesis will report on research which studied both videogames and language education, with the aim of synthesising best practice in both domains. Having discussed language learning and literacy, this thesis will define what is meant by videogames in this context before reviewing the literature on the use of videogames in educational settings. There will be a focus not only on their application to language teaching, but also on their contribution to education in general. As far as this thesis is concerned, the term 'videogame' will be used as a catch-all term to refer to games played on a number of different media. These include personal computers or laptops running Windows, Macintosh OS or Linux, tablet computers running iOS or Android and modern mobile phone technology, as well as dedicated gaming consoles such as SONY's PlayStation series, Microsoft's Xbox machines or Nintendo's Wii consoles, as well as their handheld iterations. At the time of writing, these three latter companies have recently released newer, more powerful versions of their popular home consoles. These machines, especially SONY and Microsoft's offerings, are extremely powerful machines which have the potential to offer unprecedented levels of immersion, depth and scale of gameplay. The term 'videogame' will also be taken as being synonymous with the term 'computer game'. As time has passed, the once clear distinction between these and other similar terms has blurred, and the perpetuation of such distinction is outdated and of little use within the parameters of this thesis.

Chapter 1: Literature Review

1.1 Videogames and literacy

In an increasingly multimodal world, it is of the utmost importance that learners be furnished not only with the ability to understand and interpret traditional written language, but also those other semiotic features which may be present within or linked to a particular text. Indeed, the very notion of text has developed and changed greatly, especially since improvements in internet infrastructure have facilitated the creation of new text types which ignore and transcend traditional limitations and definitions. The notion of what constitutes a text has so developed that it is now more correct not to speak of 'literacy' or even 'literacies', but rather of 'multiliteracies' which involve so much more than written language on its own. For Cope and Kalantzis (2000, p. 5) ,there is "increasing multiplicity and integration of significant modes of meaning-making, where the textual is also related to the visual, the audio, the spatial, the behavioural, and so on. [...] Meaning is made in ways that are increasingly multimodal..." This view is echoed by Gee (2003, p. 14): "Literacy is multiple [...] we have to think beyond print."

Videogames offer perhaps the most perfect and tangible examples of modern, multimodal, interactive texts. No other medium offers an interactive environment in which all of Cope and Kalantzis' textual, visual, audio, spatial and behavioural tools of meaning-making coexist, if only in a virtual sense. Each of these modes – for example the visual, musical, and textual – combines with the others to create interactive, multi-sensory experiences which are unique to videogames, such as discussed by Kress (2003). In addition to this, each video game has its own set of symbols, its own set of semiotics which must be mastered as part of the experience, or, for Squire (2006, p. 22), "Games' graphics are more than pretty pictures; they are signs that the player must learn to read." Videogames, if used correctly and appropriately, offer an unparalleled combination of all the aspects of modern multiliteracy. Indeed, for Gee (2007, p. 135)

> Video Gaming is a new "literacy." By "literacy" we mean any technology that allows people to "decode" meanings and produce meanings by using symbols. [...] Game design involves a "code" – a multi-modal one made up of images, actions, words, sounds and movements – that communicates to players because players (conventionally) interpret aspects of that design to have certain meanings.

Thus for Gee, the videogame as a medium has become an accepted text type with its own conventions and norms which are recognisable across titles. The videogame has become part of Western culture, and as it has grown so has the semiotic system surrounding it.

While videogames are a form of literacy within themselves, they also make use of 'traditional' forms of literacy in a multitude of ways. There is more to modern videogames than simply shooting aliens or collecting coins; language use pervades almost every aspect of modern videogames to the point where it has become intrinsic to the game itself. The advent of modern, powerful PCs and games consoles has led to dramatic, plot-driven games which match or even surpass many Hollywood blockbusters. As budgets have grown and graphics have improved, videogames have become truly immersive and story-driven. The plot of the game is driven forward not only by players jumping, shooting and collecting objects, but also by interacting with in-game characters who speak to them and to whom they reply; reading letters, notes or diaries they may find; and reacting to the inbuilt semiotic systems of the game. Furthermore, the traditional literacy practices of reading and writing are embodied in numerous domains connected to the game: "Games require players to be fluent in a series of connected literacies that are multimodal, performative, productive, and participatory in nature" (Klopfer *et al*, 2009, p.5). Jenkins (2006, p.18) enumerates the manner in which videogames in fact offer multiple opportunities to practice traditional literacy skills in enjoyable, user-driven ways:

> Children today "multi-task" across multiple modalities, playing a video game like Age of Mythology, reading and writing about mythology, researching it on the Internet, and, maybe, even contributing to web sites devoted to the game and wider topics in mythology.

This is a phenomenon which offers great potential for learning if harnessed by those involved in the teaching and learning of languages, in both the areas of L1 and L2 literacy.

1.2 Why videogames?

As discussed earlier, videogames are almost omnipresent in Australian society, and there is no reason to believe that Australia is unique among developed nations in that regard. Of course, that is not to ignore the so-called *digital divide* among (and even within) nations (or, as Gee (2007, p. 137) terms it "Equity and Access Issues"), but as statistically shown earlier, 98 per cent of Australian households with children have access to videogames. It is outside the remit of this thesis to debate the social issues connected to the access to technology, or indeed lack thereof, but technology must be harnessed to its full potential by schools if they are to prepare students for the world outside of school. Especially for those who lack access to technology in their home lives, schools must be a place where students become familiar with technology in all its forms, and crucially for language teachers, where they become familiar with literacy in all its forms.

Videogames are a *means to enjoyment* rather than the *object of enjoyment* in and of themselves. People play videogames not for the simple act of playing, but because in doing so they experience challenges, and emotional highs and lows. In short they play them to have fun. They play them in order to become somebody else, if only temporarily. The player's avatar thus becomes a tool,

an extension of the body, much like a blind person's cane becomes a projection or his or her physicality (Clark, 2001). As technology has become more and more integrated into our daily lives, the historical real-virtual dichotomy is becoming obsolete. The online, digital, virtual *projection* of the self is, essentially, an *extension* of the self. Gee (2007, p. 48- 54) discusses this phenomenon with particular reference to videogames: When engaged in playing a videogame there are in fact three identities at play: the *virtual* (the on-screen character), *real* (the player) and *projective* (in which "the stress is on the interface between – the interactions between – the real-world person and the virtual character." (p. 50.) While this is an extremely useful analysis, one cannot help but wonder whether the adoption of 'always-on' mobile digital technology has already blurred this distinction even further. For members of the so-called *Generation Y* or *Millennials* – for Howe and Strauss (2000) those born between roughly the early 1980s (about 1982) and early 2000s (about 2004) – the virtual self is more than a projection of the physical, biological self. It is, in fact, as much a part of the self as any personality trait. The digital has become inextricable from the physical. This phenomenon can be utilised by videogames to offer extremely strong motivation. The digital has been so normalised that human and virtual domains are no longer discrete entities. Gamers see the on-screen avatar as 'them' in ways which are impossible when engaging with other media: "video game technologies meld art and technology in ways that, for young people, make these areas much more closely related than they are for some older people." (Gee, 2007, p. 138): If used to its full potential in educational settings, this affinity between player and played offers extremely strong motivational tools which encourage the learner to continue to play, and by playing, learn. Here Gee's *projective identity* is perhaps most of interest to the videogame designer. This projective identity is a combination of the previous two. It is not simply a collection of dots on a screen which are being controlled by a disinterested player sitting in front of a screen. As Gee continues (2007, p. 53): "Players are projecting an identity onto their virtual character based both on their own values and on what the game has taught them about what such a character should or might be and become." Indeed, this relationship

> Transcends identification with characters in novels or movies, for instance, because it is both *active* (the player actively does things) and *reflexive*, in the sense that once the player has made some choices about the virtual character, the virtual character is now developed in a way that sets certain parameters about what the player can now do. (Gee, 2007, pp. 53-54, italics and parentheses in original).

Thus the distinction between player and avatar becomes blurred, and "when a quester perceives and acts through an avatar in the virtual world, the quester's perceptions and actions are embedded and (virtually) embodied in the virtual [...] world" (Zheng *et al*, 2009, p. 491, parentheses in original).

Videogames are fun. While Fullerton (2008, p. 312) describes fun as being "one of the most elusive concepts you will ever try to pin down", Lazzaro (in Fullerton, 2008, p.258-260) offers "4 Fun Keys", namely

- *Hard Fun* (beating the difficult challenges of the game),
- *Easy Fun* ("fooling around" in the gameworld),
- *Serious Fun* ("to change how they think, feel, and behave or to accomplish real work") and
- *People Fun* ("opportunities for players to cooperate, compete, and communicate").

All of these combine in varied and unique ways in different games, and so produce an affective response in the player. It is this affective, emotional response that makes videogames so enjoyable and compulsive. Lazzaro posits that the strong emotional reactions created by games play five roles:

- Players *enjoy the sensations*;
- emotions *focus attention*;
- they *aid in decision making*;
- they *affect performance* and, most importantly from an educational viewpoint,
- "emotions *reward and motivate learning* because all games teach." (p. 258, emphasis in original).

Lazzaro (2004) offers further detail on her "4 Keys 2 Fun", stating (p. 1) that

> people play games not so much for the game itself as for the experience the game creates […] to create moment-to-moment experiences, whether they are overcoming a difficult game challenge, seeking relief from every-day worries, or pursuing what Hal Barwood calls simply "the joy of figuring it out."

Many of the videogames designed for use in the classroom lack this emotional aspect, this projective identity, and an over-arching sense of fun. They lack what Lazzaro (2004, p. 3) refers to as "Frustration and Fiero (an Italian word for personal triumph)" (Parentheses in original). Lazzaro's (2004) mixed-methods study as part of XEODesign – described (p. 1) as "Pioneers in Player Experience Research and Design methods" – (quantitatively involving questionnaires and qualitatively using video recordings and interviews) of adult gamers (n=30) and non-gamer (n=15) was designed to "create nearly a dozen consolidated models of player behaviour and processes that facilitated or inhibited enjoyment." (p. 2.) This study ultimately (p. 7) offers "Four Keys [that] unlock emotion", namely *Hard Fun*: "opportunities for challenge, strategy, and problem solving"; *Easy Fun*: "intrigue and curiosity"; *Altered States*: "their internal experiences in reaction to the visceral, behaviour, cognitive, and social properties", and *The People Factor*: "mechanisms for social experiences". The findings of this empirical study, though not of a large enough scale to be

generalizable or statistically significant, are of practical use to the videogame designer. Interestingly, it is hard to deny that all four of these "keys" could equally be applied to the process of learning a foreign language in any setting. If educators can elicit these responses in the learner of a foreign language, then it is not unfair to say that they are carrying out their duties in a very successful manner.

This elusive concept of 'fun' is central both to gaming and to learning. For Vygotsky (e.g. 1966) play and the use of imagination are integral to a child's learning and meaning-making, and are at the frontier of his or her development. Indeed, Vygotsky argues that it is play itself that creates the Zone of Proximal Development, "the distance between actual developmental level as determined by individual problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86) and it is through play that the child progresses in his or her understanding of the world. Videogames, as commercial entertainment products simply will not be successful if they are not fun and enjoyable. Videogames and learning can be linked through what Csikszentmihalyi (e.g. 2002) calls "flow". This is an optimal state in which a participant is enjoying and concentrating fully on an activity. He or she may get completely lost in the moment to the point where his or her perception of time becomes distorted and everything outside the activity becomes irrelevant. This "flow state" is inherently pleasurable, and the participant wishes to remain in this state for as long as possible. It is within this state of flow that the individual may be most productive and creative. It is a state of total engagement with the activity. For Csikszentmihalyi (2002, p. 74), a "Flow Channel" exists when the participant's emotional state is between anxiety and boredom; when completing a particular task, his or her skill level is reflected by the challenge being pitched at just the right level. The task is neither too simple nor too difficult. It is just difficult enough to be at the same time challenging and achievable. This is a trait shared by the most rewarding and successful videogames, and is, even more than graphics or music or storyline, what makes them truly fun. If videogames can be adopted to help language learners enter "peak flow", then this can only have a positive effect on their learning.

While videogames are an emergent area of study in relation to education, they are part of the day-to-day life of many students. In this sense, they involve a reversal of traditional classroom knowledge; students often know considerably more about the medium than teachers do. The students are the experts, and the teachers often suffer from lack of insight. It is perhaps unsurprising, then, that instructor and student may have differing views of what may be an enjoyable, fun, yet worthwhile game. It is to be expected that teachers, unfamiliar with this relatively new and ever-developing tool, might be reluctant to engage with a domain which they simply do not understand, or when they do, that they engage with it reluctantly, or with little critical insight.

1.3 Videogames in education

Video games in education are a relatively new phenomenon, but as Egenfeldt-Nielsen (2006, p. 184) informs us: "More than once we have heard that research on video games is an emerging field in which there has been no prior research, even though this is clearly not the case." It must be noted, however, that when it comes to research on computer assisted language learning (CALL), "present research is largely exploratory in nature and is subject to limitations" (Peterson, 2010, p. 429), although Peterson (2013) speaks of the expanding research on this area. In this light, Heift and Rimrott (2012), longitudinally studied beginner learners of German's (n=15) performance in CALL tasks, summarising (p. 540) that "we need to provide a *wide variety* of CALL tasks that allow learners to explore and practice the L2 given that their accuracy rates differ depending on which tasks they perform." This has implications insofar as successful performance in the limited tasks offered by some titles does not equate to overall mastery of the language. Chapelle (2009, p. 748), summarises her research by offering a framework for the evaluation of CALL materials, focussing on six characteristics:

- *language learning potential*,
- *meaning focus*,
- *learner fit*,
- *authenticity,*
- *positive impact*, and
- *practicality*.

For Chapelle (p. 749) "[i]t is one thing to lay out important factors that go into good language learning materials and tasks, but evaluation requires that such perspectives be operationalized in a defensible evaluation of materials for a particular context." Thus Chapelle is advocating a step from the theoretical to the practical which appears to be lacking from the research up to this point.

Videogames will not replace the teacher, nor will they take the place of the many tools and techniques which have been developed up to this point in the 21st century, but to ignore them is to miss out on a potentially massive resource. Effective learning depends on sound pedagogy, and no amount of technology can make up for poor teaching strategies. As Blake (2013, p. 12) states: "Teachers with little experience of using technology often harbour the belief that merely transforming an activity into a Web or CALL format will guarantee its success for students." This thesis will not disagree with that overarching principle, but will offer videogames as another tool in the teaching and learning of language. As Blake (2013, p. 9) continues: while "some teachers who are overly enthusiastic about technology tend to confuse the use of technology with some new and superior methodological approach to language teaching [...] the mere use of technology by itself will not improve the

curriculum." These negatives should not be taken as reasons to abandon research into this domain. What is necessary is a unified push to both inform educators of the possibilities and potentials of videogames in the classroom, as well as the creation of new generations of pedagogically sound videogames which take full advantage of the opportunities the technology provides to fundamentally change how subjects in general, and languages in particular, are taught and learned. This should not be an attempt to foist videogames on the curriculum purely for their own sake. Rather, videogames should be used to synthesise all the best parts of the various extant approaches to teaching and learning in an easily-accessible, enjoyable, but genuinely educational manner. As Thorne and Black (2007, p. 149) argue:

> Education generally, and language education particularly, will need to accommodate emerging communication tools, their emergent and plastic cultures of use, as well as their attendant communicative genres that are, and have been for some years, everyday dimensions of competent social and professional activity.

It is imperative that education prepares students for the world of today and tomorrow, not the world of yesterday. Squire (2006, p. 27) offers food for thought: "As videogames mature as a medium, the question becomes not whether they will be used for learning but for whom and in what contexts." They, argues Squire, (p. 19) offer "a *designed experience*" which (p. 21) offer "*interactivity*" and "grant players *agency*". They are (p. 22) "uniquely organized for a *functional* epistemology, where one learns through doing". In short they (p. 19) "offer *designed experiences*, in which participants learn through a grammar of *doing* and *being*" (Italics in original). Sorensen (2002, quoted in Sorensen and Meyer, 2007, p. 563) offers a set of seven concepts integral to the development of any game for learning*:*

- *Challenges,*
- *Reification,*
- *Socialities,*
- *Achievements,*
- *Pleasure,*
- *Exploration*, and
- *Self interpretation.*

For a game to be successful, particularly in an educational setting, it must ensure that all these conditions are fulfilled. If they are, then an environment for good learning is created. It is interesting to reflect on these concepts for a moment; it is not coincidental that those same concepts could equally be applied to any educational or classroom activity. It is not unfair to say that this shows that videogames

offer another stage in the evolution of pedagogy, and should fit comfortably within the spectrum of teaching and learning activities if used appropriately.

One of the main advantages of the use of videogames for language learning lies in their virtual, non-threatening nature, in which language learners have the opportunity to socially interact in a manner that appears real (Rankin *et al*, 2006). In many ways, this interaction *is* real; it is simply digitally mediated rather than face to face. Delwiche (2006, p166) also emphasises the fact that "Virtual worlds are safe. [...] Safety is crucial to any learning environment. When students feel threatened, they clam up." Crucially, videogames offer an environment in which it is even safe to fail. Jones (1997, quoted in Delwiche, 2006, p. 165) reminds us that failure is not always a bad thing: "One can be told countless times, but making the mistake and the proper adjustment creates deeper connections with the content than simply trying to remember." Why would language teachers not take advantage of this?

1.4 Language, a social-cultural construct

The theoretical framework of language learning and use underpinning this thesis is that languages are inherently social constructs. They are not used in isolation, nor is the infant's mother tongue merely absorbed from his or her surroundings. All uses of language serve some social goal and exist primarily as tools for getting things done. Each discrete use of language is designed to act socially on the world in some way, and in so acting, change it. Learning and language are tightly intertwined. Indeed, Halliday (1993) goes so far as to offer a "Language-Based Theory of Learning", as (p. 93) "[w]hen children learn a language, they are not simply engaging in one kind of learning among many; rather, they are learning he foundation of learning itself." He continues (p. 113) by positing that it should be possible to "[see] learning itself as a semiotic process: learning *is learning to mean*, and to expand one's meaning potential." (Emphasis in original.)

This social nature of language is echoed by Vygotsky. As discussed by Wells (1994), the views of both Vygotsky and Halliday share many similarities. As Wells states (p. 46), for Vygotsky language

> not only functions as a mediator of social activity, by enabling participants to plan, coordinate, and review their actions through external speech; in addition, as a medium in which those activities are symbolically represented, it also provides the tool that mediates the associated mental activities in the internal discourse of inner speech.

This thesis will also take as a starting-point Vygotsky's belief that optimal learning takes place in "Zones of Proximal Development" (ZPD), and this can only take place in interaction with a more knowledgeable other. This is clearly a socially-based model of learning. It must be noted that this

model advocates the primacy of the learner in these activities. Learning should be driven by their needs and desires rather than by imposition by those with whom he or she interacts. Vygotsky (1997, p. 34) states that: "human learning presupposes a specific social nature." For Vygotsky, within this socially-based, community-supported learning experience "(l)anguage arises initially as a means of communication between the child and the people in his environment" (1997, p. 35). Videogames, as will be later discussed, can provide the user with an environment which fulfils both the criteria of being socially-based and offering the player just enough support to reach beyond his or her current ability level so to grow and develop as a player and as a learner. Videogames can also provide activities which satisfy Vygotsky's (1978, p. 118) belief (as discussed by Wells, 1994, p. 63) that "if the teaching is to be effective, the activity to which it is addressed should be perceived as meaningful, satisfying an intrinsic need in the learner and 'incorporated into a task that is necessary and relevant for life.'"

The views of Halliday and Vygotsky are in stark contrast to those scholars (e.g. Chomsky) who postulate, for example, the presence of some sort of Language Acquisition Device inherent to the infant learner. This device, it is argued, absorbs and adopts any and all linguistic input which is received, and uses this input to create an almost infinite number of variations as output. Chomsky (2006, p. 100) argues that human beings "must be endowed with a very rich and explicit set of mental attributes that determine a specific form of language on the very basis of very slight and rather degenerate data." For those who adhere to this belief, language is a discrete, innate faculty of the brain, rather than focussing on the interpersonal, community-based nature of language and language learning, in which an infant's acquisition of language is based around feedback and support from interactants and older speakers of the language in question.

The nativist side of the argument is not without merit: it is clear that humans are in possession of the physiological tools which are necessary to learn and speak a language, and which are absent in other species. This is not in dispute. The controversial aspect of the nativist (Chomskyean) model of language acquisition lies in how far they take this notion. Chomsky (2006, p. 99), for example, in defence of his theory of Universal Grammar, states that "*deep-seated formal conditions* are satisfied by the grammars of all languages" (Italics mine). These conditions, made physical in Chomsky's "language-acquisition device" allow for the "quite limited" (p. 100) data encountered by the child to be used to create new utterances which, in spite of this dearth of input, in general prove to be grammatical. Chomskyean beliefs have been opposed by, among others, Edelman, who (1992, p. 126-127) argues that "before language evolved, the brain already had the necessary bases for meanings in its capacities to produce and act on concepts," and who, furthermore, shows that the many aspects of language use are shared among numerous areas of the brain. (e.g. Wernicke's and Broca's areas.) Even Halliday, one of the more outspoken critics of Chomsky's view of language learning, concedes that "the individual has a 'behaviour potential' which characterises his interaction with other

individuals of his species" (Halliday, 1978, p. 13). This 'potential', however, is nothing more than potential if it is not unlocked. While (p. 12), humans are "biologically endowed with the ability to learn language", they are (p. 17) "dependent on [their] environment [...] for the successful learning of [their] mother tongue."

Malinowski (1923, p. 305) argues that "language is essentially rooted in the reality of the culture". The appropriate use of language is not inherent to the individual, but rather to his or her cultural context. Without a cultural context, language does not have an environment in which to grow and develop. This is not only true in the case of straightforward, everyday uses of language, but also in those cases such as religion and ritual settings in which language holds a deep symbolic meaning and power, unique to the individual cultural context in which it is found. Thus, in schools, language use needs to be "socially appropriate and culturally meaningful" (Ochs and Schieffelin, 1984, p. 307). This is relevant in two main ways: Firstly, is language which is taught in schools reflective of these two requirements? Secondly, is the use of video games likely to have a positive or negative impact on adolescents' abilities to use and understand a broad, appropriate range of language types and registers? This cultural aspect must be remembered with relation to videogames in the language classroom insofar as the language used therein must be appropriate to the culture of the language in question. That said, videogames are, as such, culturally relevant and meaningful to the modern learner, and if adopted appropriately have the power to link language, culture and the learner in a clear and strong manner.

Every use of language is, on some level, goal-based. Language gets things done. Language is an interactive tool which:

> has the aim and function of expressing some thought or feeling actual at that moment and in that situation, and necessary for some reason or other to be made known to another person or persons in order to serve purposes of common action, or to establish ties of purely social communion, or else to deliver the speaker of violent feelings or passions (Malinowski, 1923, p. 307).

Language, Malinowski summarises (1966, p. 52) "is primarily an instrument of action." It is important to note that this is a two-way relationship, as he continues "[T]he use of words is shaped by action and […] reciprocally these words in use influence human behaviour." This continues to hold true in the domain of video games, in which the mode of communication may take a number of forms, but the guiding principles remain the same. Many tasks in the language classroom are based around activities such as getting directions to the train station, buying clothes, or visiting the bank. As such, they are often delivered in isolation, in an artificial manner in which the main aim is simply to practise particular lexicogrammatical constructions. How much more meaningful might it be for the learner to complete these tasks as part of a greater whole within the context of a living, breathing (though

ultimately digital) environment? In this way, particular uses of language may be tied to a larger quest or adventure, or even a seemingly mundane visit to a foreign land, but these uses of language would be as "instruments of action", logical, and working towards the completion of some meaningful goal. Rather than role-playing with nearby students in the classroom, the learner might find him or herself actually (digitally) standing in a bank in Paris, or Berlin, or Madrid, and looking to complete a transaction for some reason, thus using their language in a meaningful manner.

1.5 Drawbacks and Limitations

The failure of videogames in education is most markedly seen in the "edutainment" industry, which appeared in the 1990s, and still exists today. As Sheldon (2012, p. 16) states: "The problem was that the EDU came before TAINMENT. Education was emphasized so much that little more than lip service was paid to entertainment." Of course, the inverse can also be true, as Sheldon continues:

> If the software concentrates too much on fun, it risks obscuring the learning objectives. [...] the secret to the balance here is pragmatic educators and game designers being willing to compromise, so that both have the opportunity to reach their goals.

This balance is still missing from almost every videogame or use of digital interactive media as seen in the language classroom. The use of commercial videogames in the classroom has been advocated by a number of authors (e.g. Anderson (2012), Gee (2003)), but as Blake (2013, p. 171) states: "Any instructor can adapt existing commercial games such as World of Warcraft [etc.] for classroom use, *but adapting them to support specific L2 language tasks will require considerable extra work.*" (Emphasis mine.) As he continues: "The literature often refers to environments such as Second Life and the Sims 2 as *digital dollhouses*, where people just dress up and act out without much significant learning taking place." A similar warning is given by Peterson (2010), who, in discussing the use of MMORPGs in language teaching, states that while "interaction in the game elicited extensive TL output" (p. 436), this was in a context where "the lower-level learner experienced difficulties dealing with multiple competencies required by the environment and experienced cognitive overload." This emphasises the need for there to be clear learning outcomes connected to all uses of videogames in the language classroom.

One of the main challenges facing any individual or group aiming to produce a videogame for language learning will be finding a balance between the educational and pedagogical outcomes and the motivational, enjoyable, playful aspect of the game. To fail to find this balance is to greatly reduce the utility of the artefact produced. The key may be in the hands of the current generation of recently-qualified teachers who have themselves grown up as gamers, and possess sound knowledge of both appropriate and effective pedagogy and what constitutes an enjoyable, compulsive, worthwhile videogame or, as offered by Sykes *et al* (2008, p. 536), *Synthetic Immersive Environments*,

"engineered spaces which integrate the many benefits of online gaming to produce explicit, educationally related outcomes in simulated, relevant interactional contexts." As Chapelle (2009, p. 751) states: "advances in technology outpace advances in language learning practices." The technology exists, its benefits are just not being fully exploited.

One of the salient aspects of many games as currently used in Australian classrooms is the manner in which they appear to be a perpetuation (or perhaps re-emergence) of the grammar-translation or audio-lingual method, as indicative of an overall structuralist approach to language teaching. Kern (2000, p. 18) describes the manner in which this method "illustrated grammatical principles via exemplary sentences. The pedagogical goal was to recode sentences written in a foreign language into one's mother tongue, with heavy emphasis placed on accuracy and completeness." As Kern continues, "It has long been recognized, however, that communicative language use involves a good deal more than the ability to understand and produce structurally-correct sentences." Instead, Kern argues (p. 49),

> It also drives the expectation, common among language students, that they should be able to understand a text if they look up all its words, or that they should be able to write a successful essay in the foreign language by simply translating a native language version word by word.

This is clearly at odds with the model of language presented earlier in this thesis. Egenfeldt-Nielsen (2006) also warns of the behaviourist model espoused by many educational videogames. "For behaviourism, learning is a matter of reinforcing the relevant stimuli and response." (p. 190.)

> Behaviorism implies a narrow focus on the interaction between player and game – the video game will ask a question and the player will answer. When students link the question and the answer enough times, reinforced by a reward, learning will occur. (p. 191.)

Essentially, (p. 193) "it focuses on training, letting the player perform mechanical operations. This leads to memorizing the practiced aspects but probably not to a deep understanding of the skill or content." Egenfeldt-Nielsen also offers a discussion on the strengths and weaknesses of Cognitivist, Constructionist, and Socio-Cultural approaches to the design of educational videogames. Interestingly, he (p. 200) notes that

> The area has yet to see the first edutainment titles extending from a socio-cultural approach. [...] most existing edutainment titles are found to be useless from a socio-cultural perspective. The existing edutainment titles fail to facilitate meaningful, engaging, and deep learning experiences.

Here also we see (p. 205) reference to "the importance of not relying solely on the video game and instead actively pursuing links with other teaching forms".

A number of packages commonly used in Australian schools offer somewhat 'gamified' versions of traditional gap-fill or multiple-choice exercises, in which correct answers are rewarded with fanfares and points, but which works on the principle that "language can be reduced to a collection of linearly organized subunits (i.e., learn *a*, then *b*, then *c*, etc.)", which is "linguistically an insufficient descriptive framework" (Blake, 2013, p. 50). While this digitised style of learning may offer somewhat increased levels of motivation, this sort of exercise is of limited worth for all but the absolute beginner, as exercises are based on simple translation of isolated words or short sentences. While, anecdotally speaking, students appear to respond reasonably well to this medium of instruction, this may be as a result of the novelty factor, or this exercise merely being less uninteresting than other, more regular, classroom activities. It is unfortunate that, while improvements to the use of videogames in the classroom are ongoing, we do not seem to have moved on very far from the problems seen by Leddo, writing back in 1996 who stated that in many educational games "the fun factor is missing" (p. 23) and students "would never voluntarily play such a game outside of class." (p. 24.) One must, however, place that quote in context: there are many classroom activities that students would not choose to do in their free time!

We must be aware of the limitations of videogames. They do not offer guaranteed success in modern language teaching in particular, and education in general, but if used correctly they can be a powerful tool. They must, however, be used in a targeted way. They must be "designed to address a specific problem or to teach a certain skill" (Griffiths, 2002, p. 47). Course and game designers must bear in mind that "The intention should be enlightenment, not entertainment" (Stoll, 1999, p. 22). It is also important to keep an eye on the bigger picture, and how learning in the game relates to further learning, or real-world use of the knowledge gained. With specific reference to language, "when considering any mediated environment, it is critical to place value on the inherent norms of the interactive space itself as well *as the application of learned skills to other communicative contexts*" (Sykes *et al*, 2008, p. 535, emphasis mine).

Chapter 2: Research Problems and the Rubric

2.1 Main research problems

This thesis will proceed to the creation of a rubric for the analysis of videogames and their utility, or otherwise, within the foreign-language classroom. This will be done in light of the literature as just reviewed, as well as by closer examination of the work of particular researchers in the field. This rubric (The LEVER) will then be applied to a number of titles which currently exist in this domain with a view to testing its applicability and robustness. The aim of this research lies in assisting teachers of foreign languages in the selection, and ultimately creation, of high-quality language-teaching videogames for use in the classroom setting. While educators are encouraged – and indeed expected – to use technology within their teaching, there is not yet a tool which the 'average' language

teacher may use in the selection of appropriate titles for use within the classroom setting. It is also hoped to engender discussion as to the overall style and quality of language-learning videogames as currently understood, ideally to raise the overall quality of available titles. While many individuals in the education sector acknowledge the potential worth of videogames for language education, there appears to be a lack of knowledge of how best to implement them. His has led to a proliferation of low-quality, low-value titles being used in the language classroom. It is hoped that this thesis may fill the gap between the theory and practice of adopting videogames in the language classroom. This thesis will also inform further research which will, it is hoped, involve the creation, implementation, and analysis of a videogame for the teaching and learning of French as a foreign language. As part of this work, there will be an examination of the extent to which it is possible and practical for language teachers to develop such material themselves, and if so, the type of support that must be provided if these endeavours are to succeed. This research will offer a unique link between best practice in the videogame design sector and up-to-date language learning and teaching methodologies. The LEVER will be complementary to, for example, those of Hubbard (2006), Chapelle (2001), and Levy (2009), but will differ in its narrower focus; while these other three focus on CALL titles and activities in general, the rubric presented in this thesis will focus solely on the medium of videogames.

2.2 The creation of the rubric and methodology

As has been emphasised thus far, it is imperative that attention be paid to two discrete but intertwined aspects of any videogame which is to be used in the classroom, namely *the videogame as a game* (ludic aspect), and *the videogame as a teaching tool* (pedagogical aspect). Neither of these criteria can be ignored. Failure to fulfil the former results in a game that is unenjoyable, a chore, and unlikely to attract repeat play by learners. If the latter aspect is weak, then the game becomes nothing more than a time-filling exercise, devoid of any true pedagogical value. The importance of play within a Vygotskyean framework is discussed by Moran and John-Steiner (2002, p. 12), based on Vygotsky (1999), who state that: "[p]lay is not just for fun; it is the work of childhood. Through play, children learn to give meaning to objects, to tease out relationships, to try on and practice different roles…" They continue "[a]s with other cultural behaviour, pretend play starts with social interaction with adults." In this sense, play and learning are inextricably linked; videogames offer the possibility of new, guided means of play, in which the child (or adolescent or even the adult) is afforded the means of developing new skills and abilities. As discussed earlier, videogames are present in almost every social stratum; we have become, as discussed by Huizinga (1949) *Homo Ludens*, Man The Player.

The rubric itself (*Appendix A*) consists of 37 statements which are designed to analyse the suitability of videogames for use in the language classroom. 23 of these statements are related to the game as a game (Ludic Aspects), while 14 analyse the game as a teaching and learning tool (Pedagogical Aspects). The game is given a rating of 0, 1, or 2 in relation to how closely it matches

the descriptors in the LEVER. Each title is thus given a score out of 46 for Ludic Aspects, and out of 28 for Pedagogical Aspects. This is not to imply that the former is more important than the latter; a title should score highly in both areas in order to be considered for use. An earlier iteration of the LEVER, involving less questions and a simple yes/no dichotomy was found to be unsatisfactory. In creating the LEVER, an attempt has been made to balance rigour with ease of use. It was thus decided not to use a 0 to 5 scale; it was felt that this greater score range might introduce too much subjectivity into the rubric as a tool. Furthermore, for those individuals who are relatively unfamiliar with videogames as a medium, making decisions as whether to award a 3 or 4 for *Visuals appropriate to setting* may be unnecessarily complicated and time-consuming. The twofold nature of analysis offered by the LEVER is of use both to educators and game designers, and allows both groups to make up for a lack of expertise they may have in the creation of high-quality titles. In applying this rubric, educators may compensate for a lack of knowledge about videogames, while game designers may focus on the educational criteria which must be allowed for in the creation of such a videogame. This rubric was created by synthesising the literature which discusses best practice in both language education and game design, after which the rubric was applied to four titles in order to test its effectiveness. A summary of the theoretical underpinnings of the LEVER can be found in *Appendix F*.

The first aspect to be treated here shall be that of the 'videogame as a game'. Videogames are designed, in the main part, to be enjoyable. They offer an escape from reality, a break from boredom, and, in rare cases, an income due to success in gaming competitions. They are fun. If they were not, then why would anybody play them? Interestingly, the sense of enjoyment which many people garner through playing videogames comes not from simplicity and success, but rather from the difficulties encountered in-game and the immense sense of achievement and satisfaction which comes from overcoming them. By pitching the challenge at just the right level (akin to within Vygotsky's ZPD), the player will rarely succeed at the first attempt, but through practice will learn how to overcome a particular problem. Is this not what teaching and learning should be all about?

This principle of Vygotsky's ZPD can be quite explicitly built into and mediated by an aspect or aspects of the design of the game. Indeed, this is not only relevant to educational game design, but is also an accepted principle of videogame design in general. There are two means by which this may be achieved. The first is through the introduction of a character in the game who will act to help the player through certain parts of the game. Novak (2012, p. 128) offers two classic character archetypes which may be introduced as more capable others in a videogame: the *mentor*, "a character who often guides the hero toward some action [...] the mentor character provides the hero with the information needed to embark on the hero's journey" and the *ally*, "a character who helps the hero progress on the journey and may also assist the hero with tasks that might be difficult or impossible to accomplish alone." These character archetypes as described by Novak fill the Vygotskyean mould incredibly well. Players will be familiar with these sorts of characters from commercial videogames; their presence in

games as designed for educational purposes will not seem out of place or inappropriate. The second method which may be used to ensure that activities encountered by the player are within his or her own personal ZPD is by offering multiple approaches to task solving or adaptive difficulty levels based on prior achievements. This is perhaps the more difficult technique to implement, as it depends on the game having an analytical aspect that reacts to player actions, to "program the system to adjust to the difficulty level of the players as they play" (Fullerton, 2008, p. 296). In a language game this may necessitate the player, through their avatar, or perhaps through the game interface or menu, actually asking for help. Alternatively, and this is the more difficult but perhaps more satisfactory scenario, the game may independently react to player failure by offering more assistance. For example, a word may be translated for the player, or the criteria which need to be fulfilled for success may be subtly changed to allow for an alternative form of success.

The main trait of videogames which brings players coming back for more is a sense of affect and emotional attachment to a character or characters within the game-world. Players care about their avatar. Where one succeeds, so does the other. The character becomes more than a tool, becoming, rather, an extension of the player's mind and body, if only in a digital sense. Many of today's successful videogames hinge on the player identifying with 'their' character. If the on-screen character solves a crime, it is because of the player's actions and choices, and they share in the glory. Most crucially, however, if this character fails, or gets injured, or dies, the fall-out from this is, in the real world, very minor. The player has a domain in which he or she can safely fail without fear of any real or lasting damage. This gives the player the opportunity to try out a number of different approaches and strategies in order to find the most suitable and efficient. It is unfortunate that this same opportunity is not afforded by our education system in particular. While schools may speak of 'learning by doing' or the students 'discovering for themselves', this is often superseded by the need to 'teach to the curriculum' or worse, 'teach to the exams'.

There are a number of considerations which must be taken by game designers, as videogames are truly multimodal entities. Novak (2012) divides them as follows:

- *platforms and player modes*;
- *goals & genres*;
- *player elements*;
- *story & character development*;
- *gameplay*; *levels*;
- *interface*, and
- *audio*.

All of these elements must be considered if a game is to be playable and enjoyable, and should be equally borne in mind by those who might wish to adopt or create a videogame for classroom use. If a title is lacking in even one of these areas, it may render it a much less enjoyable or immersive experience. Particularly with regards to a game for teaching languages, if the audio is poor, inaccurate, or even non-existent, then this clearly leaves the title open to criticism. Likewise if the interface is difficult to see or use, then any textual elements may frustrate and hinder player progress. It must be noted that in the last number of years there has been a sharp increase in the number of so-called 'casual games'. These titles, in contrast to more traditional, 'hardcore' games, often eschew high-resolution graphics and sounds in favour of low-resolution, low-budget alternatives, and place the emphasis squarely on gameplay and fun. Many people who now play videogames do not demand high-resolution, three-dimensional games – though they still inhabit a very large part of the market – but poor gameplay and frustrating interfaces will not be tolerated by this new generation of gamers. What is necessary is consistency of presentation and ease-of-use of the product. In a ruthless market which is saturated with many games of extremely varied quality, those which are not enjoyable will cease to exist, while a good game will thrive, regardless of style or budget. Videogames have become normalised as leisure activities, and are gaining widespread acceptance in society as a whole. This will eventually need to become the case in our schools.

In brief, a game which is to be used must be a good game, and the only way to find out whether this is the case is to actually play it. The instructor must have a good knowledge of the game if he or she is to successfully utilise it in the classroom. Novak's (2012) list as above offers an excellent starting-point, and can be supplemented by that of Fullerton (2008), which also emphasises the importance of *functionality, completeness and balance*, and *fun and accessibility*. This idea of 'fun' constantly re-emerges in the literature, and though hard to pin down, and somewhat subjective, it is the most essential trait of all successful videogames. McGonigal (2011, p.21) states that "[w]hen you strip away the genre differences and the technological complexities, all games share four defining traits: *a goal*, *rules*, *a feedback system*, and *voluntary participation*" (Italics mine). While the notion of "voluntary participation" may be difficult to implement in the language classroom, it is not unfair to extrapolate from McGonigal's statement that students should want to play the game. It should not be an imposition. It should be fun. Purushotma, Thorne and Wheatley (2009) refer to the importance of establishing a "*need* for language use", providing learners with "*support* that allows them to navigate the game interface and learn whatever language concepts they need to complete the task at hand" and finally "*creative feedback* mechanisms that will allow them to improve their performance" (Italics in original).

In short, in order to be a "good", enjoyable game which will attract students and encourage play, a title should display the following traits:

Language Videogame Rubric

- A consistent, appropriate, and clear graphical, musical, and textual style,

- A well-laid-out, easy-to-use interface,

- Clear rules, gameplay and goals,

- A strong, story-driven plot,

- Characters and situations which provoke an emotional response in the player.

- Multiple paths which offer opportunities to explore and use different styles, tactics, and skills.

- Task-based, rather than taxonomic presentation of content.

- Feedback. The player must know whether or not they are "succeeding", however that may be defined in any particular situation.

- A sense of progress.

- Most of all, it must be 'fun'. A game without a strong element of fun will quite possibly not be played a second time.

These traits are broadly in line with those of Vandercruysse, Vandewaetere and Clarebout (2012), who stress the importance of

- *fun or enjoyability,*

- *rules,*

- *goals and objectives,*

- *interaction,*

- *outcomes and feedback,*

- *problem solving* and

- *story.*

Lombardi (2012) extols the virtues of a "ludic methodology", which takes the following traits into account:

- *Learning contexts,*

- *Centrality of learner,*

- *Meaningful learning,*

- *Multi-sensuous engagement* and

- *motility, pluriculturalism* and *cultural relativism.*

Paying due deference to each of these traits is, for Lombardi, essential if one is to create and implement a truly effective language-learning videogame. Furthermore, he states that the opportunities for *exploration* and *culture* (that is, experiencing another environment) as offered by some videogames must be borne in mind as major motivating factors. These are major considerations which must be

made, but the absence of these characteristics is liable to frustrate or alienate players. It is a lack of familiarity with videogame design on the part of teachers that may lead to poor choices. The educational videogame industry is often content to release poor-quality titles which are adopted in good faith by many educators. On the other hand, there are examples of educators successfully adopting off-the-shelf videogames in the classroom. (See, for example, Pai (2011), who has experienced promising results in his own classroom by using a varied selection of well-chosen and appropriate videogames to improve student motivation and achievement.)

Equally pertinent are those aspects of the game which focus on the material to be taught. Many commercial games, though not created for the express purpose of academic instruction, are by nature excellent at teaching new abilities to their players. They are structured in a manner which rewards risk-taking and exploration. Furthermore, the level structure of many videogames is surprisingly akin to how many school-based courses are designed. Firstly, a new ability is introduced, for example jumping, or, to offer a language-subject possibility, describing oneself. The player is presented with often explicit instructions as to how this new ability works. They are then given opportunities to practise this ability in scenarios of increasing difficulty. Later, when they have demonstrated their ability to successfully use this ability, they must again use it to defeat the 'end of level boss', much like students demonstrating their proficiency in an end-of-unit test. Having defeated this boss/passed this exam, a new ability is introduced and the cycle is repeated. These cycles continue until the player has learned all the abilities necessary to beat the game and defeat the 'big boss', just like learners sitting an end-of-course examination.

Learning to speak a new language involves the creation of a new identity in the individual learner, in which he or she moves, for example, from being an English speaker to being an English and French speaker. Learning this new language, creating this new identity, can be enhanced by using materials, resources, and situations which appeal to the learner. "There is growing recognition that when a learner engages in textual practices, both the comprehension and construction of the text is mediated by the learner's investment in the activity and the learner's identity" (Norton, 2010, p. 358). Videogames allow for a high level of "investment" in the learning process. The presence of a player avatar may be useful in creating a projective identity for the learner. The learner him- or herself is safely seated in front of the screen, whereas it is the avatar who takes the risk, who attempts to converse in the foreign language, who may fail. This all happens in a context in which the player is not in danger of being ashamed or embarrassed. This sense of safety is essential for learning within Vygotsky's ZPD. Videogames offer engaging, safe, affective environments for this exploration of new linguistic, and therefore personal, identities.

Language learning and teaching games work best when they are focussed on well-defined areas of the subject. There must be explicit pedagogical aims. It must be clear what is to be taught and

learned in any given level or section. The game designer must have a clear idea of what he or she is trying to teach, as well as a sound subject knowledge related to that subject matter. This should be made clear to the player, either in general terms ("we're going to learn about clothes"), or more specific terms ("we're going to learn about items of clothing, colours, numbers, and the processes involved in buying an outfit in Paris.") The game must be structured so that appropriate topics are introduced at appropriate stages of the learning process, and at a point at which the student is ready to build on earlier learning. Ideally, they should offer alternative paths towards achieving the goals provided, as well as rewards for success. The player must want to continue playing, not only because they have a desire to learn, but because they want to progress through the game. This can be encouraged in a number of ways, perhaps – to use a phrase familiar to most gamers – by 'levelling up', by winning trophies or unlocking achievements, or even by being given items with which to personalise their avatar, their on-screen persona. This is particularly well handled in games which fall into the genre of Role Playing Games, in which player avatars are highly customisable.

One of the most challenging aspects of marrying these two aspects is in attempting to balance both sides by ensuring that the game does not cloud the learning, but equally that the learning does not become detrimental to the enjoyment of the experience. There must be as little distinction as possible between the playing and the learning. The importance and difficulty of ensuring this balance is discussed in depth by, among others, Hyunh-Kim-Bang, Wisdom and Labat (2010) who (page 7) advise that when designing a "serious game" consideration needs to be paid to both

- *Learning Aspects*
  - *How to make interaction instructive,*
  - *How to initiate the reflective process* and
  - *How to convey information without disturbing game immersion* and
- *Fun Aspects*
  - *How to motivate users* and
  - *How to help users advance in the game*.

While both aspects need to be satisfied, they should not be considered as being opposing factors. Rather, it should be ensured that they complement each other, and effort made to appease one does not detract from the other. This view is strongly emphasised by Purushotma, Thorne and Wheatley (2009): "one of the cardinal mistakes for all learning game designers has been to simply design games that separate learning from fun, then alternate between the two." There would be limited value, for example, in a title where a player is enjoying what he or she is doing, and they suddenly encounter a 'tacked-on' task which is anomalous to the game as a whole, which is an unenjoyable chore, and which is clearly there as a poorly-thought-out means of teaching a particular piece of lexis or construction, which, in short, breaks Csikszentmihalyi's "flow". In the design and selection of

language teaching and learning videogames, due care must be taken to avoid Fullerton's (2008, p. 334-337) "Fun Killers", namely:

- *Micromanagement* (a focus on minor details);
- *Stagnation* (a perceived lack of progress);
- *Insurmountable Obstacles* (a feeling that a task is just too difficult – even if that is not truly the case);
- *Arbitrary Events* (random, unexpected, often unfair happenings) and
- *Predictable Paths* (an overly-rigid structure and lack of player control).

In short, players must be allowed to get on with the game in order to enjoy it, and, in the case of an educational title, enter into a state where effective learning is likely to take place. That said, adolescent learners are no fools, and they will know that games, when used in an educational setting, should be educational. They will expect that they should be learning something from an educational game. The key lies in making this educational aspect fit as neatly with the rest of the game as possible; you will never convince players that they are not playing an educational title, but they will appreciate being treated with respect and given a title that does not insult them either as gamers or learners.

One of the main obstacles to implementing videogames in the classroom is a lack of knowledge of how this might be done. Lombardi (2012) argues that while many teachers do view videogames positively, they are unaware of how exactly to incorporate them into the curriculum. Thus many educators are open in principle to utilising videogames in the classroom, but lack the knowledge and guidance required to successfully adopt them as teaching tools. It must again be emphasised at this point that no videogame will replace good-quality classroom teaching, just like how quality educators will not be replaced by textbooks, videos or audio courses. What they do offer, however, is a powerful pedagogical tool for teaching and learning, provided they:

- Are clear in their teaching and learning outcomes,
- Exhibit a sound knowledge of the subject matter at hand, ('correctness')
- Offer the opportunity to demonstrate learning in a manner consistent with the game as a whole,
- And, as language is learned socially, the opportunity to use learned language in an interactive manner and in realistic settings. This also creates the opportunity to create a 'more capable other' in the Vygotskyean mould. This may be through adding a mentor, a sidekick, any other NPC (Non-Player Character) or even through a narrator or commentator. The early parts of many videogames often use their early levels or scenes to assist the player in learning the rules and controls of the game. This may take a form which is consistent with this 'more capable other', either explicitly or implicitly.

Chapter 3: Application of the Rubric.

3.1 An analysis of some currently extant language learning games

This thesis will now progress to researching and analysing a number of videogames which have been explicitly created to teach a language, or aspects of a language. The rubric created earlier will be applied as appropriate to these titles so to discuss their positive and negative contributions to teaching and learning. It must be said that, just because a title is found to show failings according to this rubric, that is not to say that it is worthless. Rather, it may exhibit some very positive characteristics which may be of use in particular settings, just that its applicability may be limited. Likewise, each title so analysed has exhibited weaknesses, either due to poor design or, in the case of two of the titles, due to their not yet being complete to the level of being ready for commercial release.

The videogames which are to be studied are all used in, or designed to be used in, the teaching and learning of foreign language. *Duolingo*, *Language Perfect*, *Digibahn* and *Language Trap* all offer quite different and unique approaches towards this task with varying degrees of success. The context of each individual videogame is also noteworthy: *Duolingo* is a free product aimed at both the individual learner and also as a potential classroom tool. *Language Perfect* is a commercial, monetised product which is aimed explicitly at the school market. *Digibahn* was produced as an academic exercise by a teacher of language who had previously had little to no programming or game-design experience. *Language Trap*, also an academic exercise, was created by a student with a background in Computer Science. This variety is intentional, and it is intended that such a cross-section might offer good insight into how a number of different styles, genres, and tasks may be incorporated into the paradigm offered by this thesis.

There are a number of 'videogames' currently used in language classrooms which are almost unrecognisable as videogames to those who are familiar with the medium. Rather, they are essentially on-screen versions of traditional pen-and-paper exercises with some added digital 'bells and whistles'. These titles simply take exercises such as simple multiple-choice questions or cloze passages and make them 'digital'. This is an extremely shallow form of gamification which offers little pedagogical innovation. It may, in fact, be more appropriate to create a separate classification, which I term 'digital wordgames' for such titles, as opposed to titles which display a higher number of characteristics common with 'proper' videogames. While this genre of games does offer instant feedback and positive reinforcement to the learner, the titles involved do not fulfil any of the other criteria necessary to be 'good' pedagogical videogames. Such is the dearth of quality language-learning videogames, these low-quality programs are far and away the most common result of any Internet search for sites such as 'language learning games' or 'French language games'. They have become normalised as being representative of the potential of videogames in language learning and teaching, and have done very little to add to the reputation of technology in the language classroom. Videogames have the

potential to offer so much more than repetitive, shallow exercises that are simply coupled to tokenistic behaviourist rewards systems that do not really promote meaningful learning (Novak, 1998). These basic titles will not suffice for the learners of today, who are

> probably too smart to be cheated by the discount games that edutainment often are. [They lack] the coolness of the games industry, the state-of-the-art technology, the constant innovation in gameplay but perhaps, most importantly, the basic desire to produce entertaining products beyond anything else (Egenfeldt-Nielsen, 2007, p. 41).

As one of the key aims of this thesis is to inform a move away from the 'digital wordgame' as a genre, the four titles will be analysed along a cline of 'most like a digital wordgame' to 'least like a digital wordgame'. It is interesting to note that the score earned by each title does not increase directly from title to title. In general terms, however, the first two titles analysed – Duolingo and Language Perfect – (both of which could be considered as being 'digital wordgames') exhibit significantly lower scores than the other two titles analysed. The created rubric has been completed for each of the four titles (*Appendix B* to *E*) for comparison. What will now follow is a discussion of the most salient aspects of each title with respect to both *Ludic Aspects* and *Pedagogical Aspects*, as per the LEVER. For reasons of clarity and brevity, it has not been deemed appropriate to discuss each title in light of every individual criterion or sub-criterion. Rather, this discussion will focus only on those aspects which are most significant in each title.

3.2 Duolingo and Language Perfect

Duolingo (Appendix B)

Score: Ludic Value 20/46, Pedagogical Value 8/28

Strengths: A clear interface, straightforward gameplay, good feedback.

Weaknesses: No background story/characterisation/creation of affective reactions, no integration of prior learning, really just a set of isolated translation tasks, no social use of language, phrases often nonsensical.

Background

Duolingo is an extremely popular program (at the time of writing it claims to have 38 million users) which is available both as a browser-based tool and as a mobile phone app, with the user being able to transfer his or her progress between both versions with ease. Duolingo allows the user to learn Spanish, French, Italian, German, Dutch, Danish, Irish, and Portuguese, as well as English for speakers of other languages. The end user is not charged to use the program; the company makes money through users collaborating to translate real-world web pages. The Duolingo homepage claims

that the system is scientifically proven to be an effective means of learning a foreign language. There is a strong emphasis on the "gamified" manner in which Duolingo approaches the teaching and learning of foreign languages.

Duolingo is perhaps the prime example of the 'digital wordgame' as currently available, and revolves almost entirely around the user translating phrases from English into the Target Language (TL), and occasionally completing short (one-sentence) dictations. There are also optional exercises in which the player speaks his or her translation into the computer's microphone rather than typing a response. The "gamified" aspect of the program is enacted through players losing hearts for offering incorrect answers, and receiving 'lingots' (in-game jewels used as currency) for successfully completing challenges. The player can also link to other friends who are using Duolingo, and see their achievements ranked on a leader board against the scores earned by these friends, thus adding a friendly competitiveness to learning a language.

Ludic Aspects

Due to the nature of the title, it is not possible to readily analyse Duolingo as a 'game'. Gameplay consists of a number of variations on a theme of translation to and from the Target Language. These goals are made explicitly clear from the start, and the interface is clean and free from visual clutter, and functions quite well within the overall aesthetic of the title. As a 'digital wordgame', Duolingo functions rather well as an exemplar of the genre. It is a stable product which works well across a number of platforms, offering a good amount of material, divided into logical sub-units. After that point, however, Duolingo ceases to exhibit any characteristics of a true videogame. While it would be incorrect to assume that students wish to play videogames all day in school, there is a large proportion of students who are not adequately catered for by the current educational system, students who experience "frustration with traditional styles and methods of teaching" (Riley and Docking, 2004, p. 168). For these students, for whom school is a chore, any medium with the potential to assist in their engaging with the material to be learned should be explored. While Duolingo in its current form may be attractive in the short term due to its novelty value, it is unlikely to hold any long-term attraction for adolescent learners who have been brought up on Triple-A titles which offer engaging plots, characters, and scenarios. While it might be impractical for a title such as Duolingo to attempt to compete with commercial entertainment videogames on a graphical level, for example, there is no impediment to the creation of a more engaging title save a lack of imagination.

Duolingo is a clear example of the digitisation of older means of instruction without using the opportunities afforded by technology to improve the learning experience. It appears that the simple act of completing the exercise on an electronic device, rather than on paper, affords the creators the right to describe and market it as a 'game'. It is doubtful whether the same exercise if completed in a workbook would be considered a 'game'. Indeed, in the early 21st Century, would any language

teacher present his or her students with a list of dozens, or even hundreds, of sentences to translate into and out of the Target Language and argue that they consider this to be the best manner for learning to take place, let alone present it to their students as a 'game'? Moreover, what is the likelihood of said students accepting this exercise as being an efficient use of their time educationally, much less as being 'fun'?

Overall, Duolingo's score for *Ludic Aspects*, 20 out of 46, or just under 50%, reflects the manner in which the title lacks any true sense of being a videogame. Indeed, closer scrutiny of these scores show that of these 20 points, 9 came from the criteria of *Consistent, appropriate, and clear graphical, musical, and textual style* and *Well-laid-out, easy-to-use interface*, indicating a significant lack of points in those areas such as *Strong, story-driven plot,* in which the title failed to score.

Pedagogical Aspects

Upon signing up for Duolingo, the player completes a simple one-sentence translation, and is then invited to start the learning stage proper. The game offers a clear progression tree, showing the player what they have learned up to this point, and what they have yet to learn. This is not dissimilar to the type of interface often used by videogames, in particular Role Playing Games (RPGs) to visually represent character (player) progress and development. It is also clear that this progress will be quite linear, although there are opportunities for stronger learners to "test out" of completing some of the easier tasks if so desired. The tasks are divided into quite typical units such as *Animals*, *Food & Drink*, and so on. After completing a number of these units, the player is then instructed to complete an entirely unrelated task: he or she is asked to translate a portion of an internet webpage. There may be no link between the vocabulary and structures encountered in this task and that which has just been learned, and this task is of a much higher difficulty level than any work completed up to that point. This exercise is, however, how the player 'pays' for using the game; the company behind Duolingo charges real-world companies in return for its users translating their webpages into foreign languages. This crowdsourcing method is cheaper than hiring a professional translator, and the text is collaboratively translated by many users of Duolingo. It is questionable, however, how accurate or otherwise this translation may be, given the fact that most of the individuals involved may be novice learners of the target language.

One of the main negatives of the approach taken by the makers of Duolingo lies in the nature of the material which the user/player/learner must translate in order to progress through the game. While the grammar-translation in and of itself is of questionable merits – in particular when it is essentially the sole basis for a title – the form chosen by this particular title is arguably of limited use in the real world. The player, rather than progressing through conversations or dialogues, must complete a series of isolated sentence translations which are repetitive and contain bizarre situations which are unlikely to ever be encountered by the learner outside of the game. (*Social, interactive use*

of language = 0/4). Some of the more unusual translations from a quick survey of game material are "The birds read the newspaper", "The shark is eating the dead elephant" and "I am dying alone". It is highly unlikely that any language learner might need to use these phrases when visiting a foreign country. This has been reflected in low scores in these areas of the rubric. This title is based on the grammar-translation method of language learning, and combines this with a simple behaviourist response-reward structure.

Overall, from a language-teaching point of view, not only does Duolingo depend on outdated skill-and-drill (drill-and-kill) mechanics, but the language – or at least the syntactical choices made by the game's creators – bears little resemblance to the type of language encountered in everyday life. Furthermore, with the exception of the game's mascot, at no point does the player encounter any other characters, if only virtual. No effort is made to contextualise the learning. There is no sense of a Malinowskian use of language as an instrument of action, or of the player's use of language having any real effect on the world. Regardless of the task being completed, or the lexical field in question, the player is presented with the same style of text on a broadly plain background. A simple improvement would have been to turn each unit of work into a more realistic conversation, and for this conversation to be placed into an appropriate setting, for example a shop or hospital. This change would have fundamentally altered the style of the game so to make it of more value as an expression of language as a social semiotic rather than a list of rules to be repeated, memorised and internalised ad nauseum. This lack of real-world, sociopragmatic use of language results in Duolingo's score of 8 out of 28 for *Pedagogical Aspects*. While the user may rote learn individual words and short phrases in the target language through using this title, it is debatable whether this will assist him or her to *communicate* in the TL.

Language Perfect (Appendix C)

Score: Ludic Value 15/46, Pedagogical Value 6/28

Strengths: closely linked to the curriculum, consistent gameplay, immediate feedback.

Weaknesses: lack of progression, no background story/characters/ creation of affective reactions, no social use of language, repetitive tasks involving translation of isolated words (no sociopragmatic aspect).

Background

Language Perfect is another title within the 'digital wordgame' genre, and many of the comments made in the analysis of Duolingo also hold true for this title. Again, this title is based around simple translation to and from the Target Language. Unlike Duolingo, Language Perfect is subscription-based and aimed squarely at the school market. Furthermore, the product is tailored to the

needs and demands of the particular school and class, with the vocabulary which is learned and tested being drawn directly from the textbook used by each individual group. Language Perfect is mainly used to test vocabulary, but there is also a section on, for example, French Geography and Culture.

Ludic Aspects

As with Duolingo, Language Perfect does not exhibit many of the characteristics of true videogames, which has resulted in the title scoring 15 out of 46 in this section. As most of the comments made about Duolingo also apply to Language Perfect, it is unnecessary to enter into further discussion of the Ludic Value of this title.

Pedagogical Aspects

Language Perfect takes a similar format to Duloingo, focussing on the translation of single words and short phrases (such as "how are you?") into and out of the Target Language. All of these words and phrases are shown in absolute isolation, and no information is provided as to how these words come together to form clauses or sentences. Essentially, Language Perfect is one big vocabulary test, in which words are recycled and retested numerous times, and in which correct answers are rewarded with points, and wrong answers are punished by the loss of hearts. It is disappointing, however, that there is no section devoted specifically to the sociopragmatic choices which students may need to make in real life, such as the difference between *tu* and *vous* in French. This is reflected in the scoring as per the rubric, in which Language Perfect scored 2 for *Language used is lexicogrammatically accurate*, but failed to score within the area of *Language is sociopragmatically appropriate.*

Much like Duolingo, Language Perfect is a pen-and-paper exercise converted to digital format. Students are rewarded for learning individual words by rote, and the 'game' never progresses past this point. While it is acknowledged that rote learning of vocabulary is a necessary part of language learning, especially in the early stages, a point must come where the learner is challenged to put this lexis into use in a practical (or quasi-practical) manner. (*Task-based presentation of content =* 0/2). Interestingly, anecdotal evidence shows that the reaction to Language Perfect is broadly positive from both language teachers and students. If such a positive reaction can be garnered by a product which utilises but a fraction of the potential of videogames in the classroom, how much more positive might the reaction be to a title which fully harnesses the affective and pedagogical power of the medium?

In the case of both the above titles, there is very little if any evidence of there being a socially-based view of language learning used to inform the creation and choice of materials. It could be argued that the interaction between user and computer is barely interactive; the computer produces a

word or phrase and the user translates it. There is also no defined progression of difficulty as the user continues through these titles. He or she will be completing almost identical exercises at every point during the game. While the vocabulary may change, the complexity does not. A learner could pick any unit of work and complete it in isolation. No link is made to future or past learning. Nor is Vygotskyean mediation applied in a useful, meaningful manner. The user is not challenged to strive to make progress. Each response is correct, or it is incorrect. If it is incorrect, the correct answer is provided, and the user will attempt that same translation again in a moment. Arguably, the role of the more capable other is to assist the learner in improving his or her mastery of the language, not to provide the answer each and every time. In the case of Duolingo and Language Perfect, learner progress is measured by the number of 'right' or 'wrong' translations of isolated, often ridiculous or irrelevant phrases. Upon 'completing' these titles – if one can ever really 'complete' them – the learner will not necessarily be very well equipped to visit a country in which the Target Language is spoken, much less function in everyday society.

Language Perfect's score – 6 out of 28 – reflects the extremely limited use of this title in the general context of the learning of a foreign language. That said, if viewed as a tool to assist in learning individual items of vocabulary, and nothing more than this, it may be of some use in the classroom setting.

3.3 'Digital wordgames': Some closing comments

In summary, both Duolingo and Language Perfect are extremely limited titles which essentially focus on a narrow Grammar-Translation interpretation of language teaching and learning. Indeed, it is inaccurate to describe them as videogames, and instead they have been given the title 'digital wordgames'. It is perhaps reflective of general trends and preferences in the domain of language education that the 'safe', traditional, indeed old-fashioned option has been taken. There is very little in these titles that might change or revolutionise language teaching and learning. Indeed, it could be argued that the preference for these straightforward titles which are easy and cheap to produce and distribute may in fact be a retrograde step when it comes to foreign languages in our classrooms. Those people who would produce titles with more complexity and value are in the minority, and may struggle to find a place among the many titles which already exist. Indeed, the existence of many low-quality titles may cloud the vision of educators, and make them blind to the true potential of technology, and particularly videogames, in the classroom.

That is not to say that the 'digital wordgame' as a genre is entirely without merit. In and of themselves, these titles are limited, but may act as a stepping-stone towards a greater integration of digital technology in the language classroom. They offer tasks which are familiar to educators and students alike. While they may be based around teaching methods which have fallen out of favour in recent years, that is not to say that their pedagogical style should be entirely dismissed in certain

circumstances. For the beginning language learner in particular, the repetitive nature of these titles may assist in the learning of isolated pieces of vocabulary, though not necessarily how to use this lexis in practical situations. In the early stages of learning a foreign language, it is almost impossible to make progress without simply learning certain words and phrases. Regardless of the pedagogical outlook of the instructor, novice learners cannot proceed to more 'social', 'realistic' or 'practical' utterances without first internalising the basic building blocks which make up these more complex phrases. If these 'digital wordgames' act as a motivating factor in that endeavour, then they may well have a place in the foreign language classroom *as long as educators are aware of their limits, and use them as only one of a number of appropriate tools and tasks in the classroom*. While no one activity should be used to excess by educators, this is especially the case with digital media, which may be used as a 'fall-back' option or 'filler' much in the same manner as videos have been used in the past to 'keep classes busy'. This clearly lessens their efficacy, as they, much like any learning task, are best used in a targeted, well-thought-out manner.

Due to the familiar nature of 'digital wordgames', they may offer a comfortable introduction to digital learning technologies to those educators who have to this point shunned the use of such learning tools in the classroom, either through a lack of familiarity or a lack of ease with computers. This also holds true for those students who may be suffering at the lower end of the so-called 'digital divide', those students who have been left behind by the technological revolution and who do not have access to the cutting-edge materials which are available to the most fortunate in society, on both a national and global scale. It is perhaps unrealistic to expect those in such circumstances to be willing to adopt, or be capable of adopting more complex videogames into their classroom activities. More simple titles, limited though they may be, may offer the opportunity to slowly become more adept in the use of technology as a part of language teaching and learning. This is perhaps best handled as part of a school- or at least faculty-wide policy of technology adoption which has clear goals in the longer term as to the overall progress which they aim to effect in this area. In short, these titles are of only limited worth if viewed in isolation. If taken, however, as one facet of a larger set of policies and aims, they have the potential to act as a first step towards the integration of more complex titles into the curriculum.

3.4 Language Trap

Language Trap (Appendix D)

Score: Ludic Value 35/46, Pedagogical Value 23/28

Strengths: believable gameworld and characterisation, mediation provided by mentor character, strong sociopragmatic element, learning outcomes closely linked to the curriculum and evidenced by progress in the game.

Weaknesses: short game, lack of multiple or additional paths, help can sometimes be too helpful.

Background

It is clear that this title takes a very different approach to language teaching and learning than titles such as Duolingo, Language Perfect, or other 'digital wordgames', in that the player can see his or her avatar, and use it to influence and change the game world. Language Trap was created by researchers in the University of Dublin, Trinity College. The game is designed to help learners preparing for their Leaving Certificate (final high-school examinations) German examinations, and focusses particularly on the pragmatic choices one must make in conversations with others. There is also another, 'unofficial', version which was created to trial Irish language speech synthesis, access to which was kindly given for research purposes for this thesis. While not graphically rich, the visuals, in an isometric three-dimensional style are quite functional, and place the player in a hotel environment in order to solve a mystery. Neil Peirce, the creator of the game describes the thought processes behind the game as follows (Peirce, 2014, personal correspondence):

> The processes behind the design of the game was influenced by the nature of the learning content (language learning), the age, interests and ability of the learners, the environment in which the game would be trialled (secondary schools), best practices in educational game design, and the need for a game that could be personalised for each learner.

Language Trap, as a piece of software, was programmed 'from the ground up' by its creator. This ultimately allows for a freedom to create the game exactly as the coder desires. Of course, the production of a title in this manner requires extensive knowledge of an appropriate programming language, and is likely to prove unrealistic for most teachers of language. It is also an extremely time-consuming process. From a practical point of view, creating a game from scratch in this manner is prohibitively difficult for those who do not come from a long-standing background in computer programming. Furthermore, outsourcing the production of a title may prove expensive, and may lead to complications or misunderstandings when it comes to the design of the game.

Ludic Aspects

Of the four titles analysed, Language Trap was shown to display the highest score for *Ludic Aspects*, scoring 35 out of 46. The title shows a number of particular strengths, particularly under the headings of *Consistent, appropriate, and clear graphical, musical, and textual style* (= 6/6), *Clear rules, gameplay, and goals* (= 6/6), and *Strong, story-driven plot* (= 6/6). Marks were mainly lost in the areas of *Multiple paths allowing for different styles and tactics* (= 1/4), *Immediate and appropriate feedback* (= 2/4), and *Sense of progress* (= 1/4). The title also scored well on *Learning tasks integrated*

within overall game (= 4/4). As discussed below, the rubric has shown Language Trap to be reasonably enjoyable as a game, in spite of a number of shortcomings.

Upon signing in to Language Trap, the player is presented with a back-story and scenario for the game. In the Irish version of the game, the player has lost half of a winning lottery ticket. The German version, based on a prescribed task for the high-school-leaving examinations in Ireland, sends the player into the hotel as a secret agent who has been asked to liaise with another secret agent without blowing his or her cover. In both cases, although the back-story is short on detail, it is a viable attempt to draw the player in, and create rapport with the player's avatar. The game proceeds by the player guiding his or her avatar through the hotel in which the game is set, and interacting with various NPCs in order to gain information and make progress in solving the mystery that has been set. Movement, interaction with the game environment and with Non-Player Characters (NPCs), and the selection of in-game options are carried out by left-clicking with the mouse. No other controls or interactions are available. This makes the game quite straightforward to play, and thus accessible to a large number of learners. (*Well-laid-out, easy-to-use interface* = 5/6.) Upon encountering a character, the player clicks on this character in order to greet them, and is given a set of three options in the Target Language. These three options vary in difficulty and complexity, but all are, to a greater or lesser extent, appropriate to the dialogue taking place. The player makes their choice as to what they will 'say', and the NPC responds appropriately, and thus the conversation continues until it reaches a conclusion. This will usually result in the player being given advice or information pertaining to what their next move should be.

Early in the game, the player meets a 'man in white' who acts as a companion character for the duration of the game. This character essentially takes the role of the Vygotskyean other, and is present to assist the player in adapting to the game world as well as synthesising the information he or she receives from other characters in the game. This approach towards Vygotskyean mediation offers players assistance on demand to complete tasks which they find to be just too difficult on their own. This reflects the role of the teacher in the language classroom, as well as older speakers of the language in society in general. It thus makes the use of language within the game more realistic, and offers a social aspect which is absent in the other titles analysed.

Language Trap does not require a large amount of previous experience of playing videogames in order to be quite easily understood by the player. This is advantageous in that it offers greater potential for use in particular by educators who may not be entirely familiar with the use of videogames either as a recreational or educational tool. (*Well-laid-out, easy-to-use interface* = 5/6). The straightforward, one-button style of interaction also allows for easier use by those with physical difficulties. This left-click system will at the same time be familiar to those individuals who are familiar with the 'point n click' style of videogame from which Language Trap takes its inspiration.

The user moves the on-screen pointer using the mouse, and the left mouse button controls all interactions, including moving the player's avatar (by clicking on a point on the background), interacting with NPCs (by clicking on them on-screen), and choosing responses to NPC prompts (by clicking n the chosen response from the list of potential responses provided), as well as selecting items from the player's inventory, although this option is not utilised in the versions of the game as researched for this thesis. It must be noted that this is not necessarily a complete commercial-type title, and as such is not a 'finished' title, hence the manner in which not all potential aspects of the game have been fully implemented.

The gameplay of Language Trap consists of the player moving from room to room in the hotel in which the game is set, and interacting with various NPCs in order to complete the task or mission in the most effective manner. His or her avatar – and by extension he or she – will have a better outcome dependent upon the choices the player makes throughout the game. In the case of the Irish-language version of the game, the player's character will keep a greater or lesser share of the lottery jackpot depending on the linguistic choices made in the run-up to the final conversation of the game, in which the player meets the NPC who possesses the other half of the winning lottery ticket. Thus there is an attempt to create an emotional bond between the player and his or her character. Thus the game gives the player a sense of agency. (*In-game problems involve a sense of urgency and/or stress* = 2/2). This affective aspect does not get the opportunity to be fully explored in the title, however, due to the short nature of the game, which took this researcher about 20 minutes to complete, although a learner of the language would presumably take longer to finish the title. There is, however, a lack of customisability of the player's avatar, which may serve to disassociate the player somewhat from the game. The simple choice between a male or female character may seem somewhat lacking to the user who is used to playing role-playing games, for example, with highly customisable and upgradable avatars. The issue of ethnicity cannot be ignored, with both the male and female character options, as well as all NPCs in the game, being of Caucasian appearance.

Language Trap, while offering the player a sense of agency, does exhibit a rather linear storyline, which detracts somewhat from the immersive nature of the game. (*Sense of progress* = 1/4) To progress in the game as a story, every player will need to interact with the same NPCs in the same order. Indeed, some NPCs do not appear until this is triggered by a previous interaction with another NPC. This does not allow individual learners to approach the game in the manner which best suits them. Language Trap works more like an interactive storybook than a true videogame, in which one of the more important aspects is the presence of choice. This may be a choice as to the order in which the player wishes to approach a number of tasks, or the manner in which these individual tasks are completed. This is not a possibility in Language Trap. This absence may frustrate those players who are more familiar with commercial videogames, while conversely making the game more readily accessible for newcomers to such media. The interactions with the NPCs are also very tightly scripted,

and on occasion the choices made by the player appear to have very little influence of note on the game world. Given the nature of the game, it may have proven difficult to implement a more open style of interaction, and from a sociolinguistic point of view, what the game does it does it quite well. Although the interaction enacted is always between the player's avatar and computer-controlled characters (that is, the player never interacts with other 'real' people), within the virtual world this is 'real' interaction which is goal-based and socially mediated. It must be reiterated that the distinction between 'real-world' and 'virtual' is now outdated: the line dividing these two domains has blurred to the point of almost disappearing, and perpetuating this distinction is to ignore the ongoing assimilation of technology into everyday life.

Pedagogical Aspects

Language Trap also scored very highly pedagogically, earning 24 marks out of 28. This is reflective of the manner in which the game is directly based on a curricular task, as well as providing an environment in which language is intrinsically linked to action and 'getting things done', and every choice made has consequences.

There is a strong socio-pragmatic aspect to the conversations encountered in Language Trap (*Language used is lexicogrammatically accurate* = 2/2 and *Language is sociopragmatically appropriate* = 2/2). When interacting with an NPC, the player is given four choices of what they wish to say to this other character in order to start a conversation, make small-talk, or find out some information related to the goals of the game. The creator has here made a rather interesting design choice which has both positive and negative aspects. Firstly, there are no 'wrong' answers offered as options, only those which are more or less appropriate and correct. When greeting an NPC, all four options offered are greetings, although it must be noted that choosing a less appropriate greeting may result in the NPC viewing the player's avatar in a less favourable light. This design choice emphasises the real-world pragmatic choices which may be encountered by the player, and exhibits a depth of thought which is lacking in less complex titles. However, when playing Language Trap, each of these options is accompanied by a star rating; the more appropriate the choice, the greater the number of stars received. There does not appear to be an option to turn off this option. These earned stars can later be traded in for help or hints if the player cannot negotiate a particular aspect of the game. This ever-present star rating somewhat defeats the purpose of the game; it is possible to complete the game on auto-pilot without actually reading any of the options provided simply by picking the response with the highest star rating. While instant feedback is a very positive characteristic of videogame technology, and this star rating may be of assistance as a learning tool, its implementation in Language Trap is flawed (*Immediate and appropriate feedback* = 2/4), and could be improved simply by offering the option to turn it off. The fact that each utterance offered is grammatically correct ensures that the user does not see and absorb any 'incorrect' examples of the Target Language; the focus is on

choosing the most socially acceptable phrase on the list. This does, however, position the title at a level which is unsuitable for novice learners who may not yet be familiar with the many nuances of the language they are learning.

As an immersive pedagogical experience, Language Trap works quite hard to draw the player in. The storyline is believable and serves its purpose quite well. Graphically, it is functional. From the point of view of creating an immersive language experience, the game works quite well. (*Social, interactive use of language* = 4/4.) All conversation exists both as on-screen text and as spoken language, played through the computer's speakers. This use of both channels of transmission allows the player to make a link between the spoken and written word, as well as taking into consideration those users who may have hearing difficulties. Thus the player interacts on the level of both the auditory as well as visual channels; their reading and listening skills are both practised. Their writing and speaking skills are not explicitly developed within the boundaries of Language Trap, although listening to the authentic pronunciation, especially in the Irish-language version of the title, may aid in improving the user's spoken language skills.

3.5 Digibahn

Digibahn (Appendix E)

Score: Ludic Value 32/46, Pedagogical Value 18/28

Strengths: Immersive graphical style, clear links to curriculum and prior learning (material available to pre-teach lexicogrammar), in-game success linked to demonstration of learning.

Weaknesses: lack of NPCs (ghost-town), short (unfinished) game, current iteration has narrow focus, repetitive tasks, possible to complete the game by learning a limited range of terms.

Background

Digibahn, designed to teach particular aspects of German language, is one example of a title which was created using the *Unity 3d* game engine, and is a representative example of the type of title which may be created by newcomers to the software. While exhibiting some of the potential of *Unity 3d* for creating language-learning videogames, Digibahn also offers up a number of difficulties which may be encountered, and hopefully overcome, if educators choose to work with this package. It must be noted that designing a videogame with a game engine is a difficult and time-consuming task, but one which offers countless possibilities to the determined and dedicated user. It must also be noted that Digibahn is a work in progress and is not equivalent to a commercial-release title. The creator of the game when reporting on its implementation states that "[p]articipants in the experimental group

were immersed in the 3D-DGBLL environment for an average of 11 minutes and 47 seconds."
(Neville, 2014a, p.9.) This emphasises the fact that this is not a long, fully-featured title.

Digibahn is set in the town square of a fictional German city, Bad Oberdenkelheim. This
square is surrounded by city walls and contains a fountain and some appropriate buildings such as a
church. Graphically, Digibahn is presented in three dimensions, and the graphics are functional if
somewhat dated. (*Visuals appropriate to setting* = 2/2). In the opening stages of Digibahn, he player
finds him or herself in the town square, and is informed by a pop-up message that the town is
becoming polluted due to its being unable to keep up with the demand for recycling. In order to
progress to the next area in the game, the player must pick up a number of pieces of rubbish and
recycling, and place them in the appropriate bin, for example green bottles in the green glass bin, clear
bottles in the clear glass bin and so on. The player is assisted in this labour by the message remaining
on the screen for a number of seconds. When this task is completed, the player may proceed to the
next stage of the game, which takes place in a museum. This section of the game has not yet been
finished by the game's creator.

Ludic Aspects

Whereas Language Trap offers the player a third-person isometric view of the game setting,
the action in Digibahn takes place from a first-person perspective. That is to say, players see through
their avatar's eyes as though they themselves are physically present in the game environment. They
cannot see their avatars' bodies on the screen. Rather, when the player decides to move in the game,
the entire view shifts as though their body is moving through space. (*Consistent, appropriate, and
clear graphical, musical, and textual style* = 6/6.) In Digibahn, all interactions occur as though in 'the
real world'; when the player, for example, looks at a sign, that sign fills most of the player's field of
vision in a similar manner to how that interaction would happen in his or her daily life. It is, as per its
creator, "a three-dimensional digital game-based language learning (3D-DGBLL) environment".
(Neville, 2014a, p.1.)

Upon starting the game, the player is presented with a menu offering links to the instructions
for the game as well as a page discussing the background to the project, along with buttons allowing
him or her to play or quit. The *Play* option leads to a screen, in German, which informs the player as to
the story behind the game. The game is controlled using a combination of buttons and mouse which
are extremely familiar to players of PC videogames; the WASD keys are used for movement, spacebar
is used to jump, the mouse is used to control the player's field of view, and the left mouse button is
used to interact with the game environment. This pattern is identical to many if not most first-person
shooter titles among others. As well as being an easily-accessible, tried and tested, efficient control
system, this choice makes the title play very much like a commercial videogame, increasing its appeal
among those hardcore gamers who might otherwise be unwilling to play an educational title. Time,

thus, need not be lost to explaining the control system. Game movement is smooth and intuitive, and adds to the immersive nature of the title in general; the game does what you expect it to do in any given situation. (*Well-laid-out, easy-to-use interface = 6/6*.)

There are three different statistics pertinent to the player's performance displayed on screen at all times: *Money*, *Health* and *Tasks Remaining*. This is consistent with a simple commercial videogame, and it is clear that the creator wished this to be the case. Money can be increased by finding cash hidden around the gameworld, but can be lost by performing actions which are socially unacceptable in Germany, such as jumping in the fountain. Health is lost through performing incorrect actions such as entering buildings which the player does not have authority to enter, but can be replenished by picking up first aid kits, a feature present in many action videogames. The tasks remaining list reduces by one as each task is completed. (*Clear rules, gameplay, and goals = 6/6*.) Overall, although gameplay is simplistic, Digibahn succeeds quite well in being a game. It is an immersive experience, and many of the characteristics of commercial videogames have been adopted and integrated into this title. It is realistic, and representative of scenarios which might potentially play out in real life, or at least there is nothing extremely unrealistic in the setting or gameplay. The backstory aims to create rapport between the player and his or her virtual self, although it is lacking somewhat in detail. The player is essentially placed into the gameworld without being told how they got there or why they are there, only being informed what it is they must do to proceed. Digibahn thus loses marks in relation to criteria such as *Engaging complications in storyline* (= 1/2).

Pedagogical Aspects

Digibahn exhibits essentially no social, community-based foundation for language use. The player is deposited in an uninhabited world with no other characters with whom to interact. The game is set in what could easily be a living German town save for the fact that there is nobody else there. There are signs and notices on display throughout the gameworld, but no other 'people'. This obviously detracts from the immersive potential of the game: Who would find this scenario to be realistic or representative of the target culture? (*Social, interactive use of language = 0/4*.) Much as movies and television shows contain high numbers of 'extras' when shooting scenes, similar steps should be taken when creating a videogame which is designed to be realistic, or somehow representative of real life. When present, these individuals largely go unnoticed, but when they are absent this adds an unrealistic, almost uncomfortable trait to the particular scenario. The addition of other characters, even if only a small number could be interacted with, would be a positive addition to future iterations of the game. When playing, the player cannot talk to anybody, nor can they listen to whatever anybody else may have to say. This also obviously limits the opportunities for the player to practise his or her productive skills of writing and speaking. How can language use be community based if there is no community? Language cannot exist in a vacuum, and the setting of Digibahn

within a ghost town which is devoid of inhabitants makes it extremely difficult to use language in a realistic, socially-conceived way. That is not to say that the NPCs in a language-learning videogame necessarily need to be photorealistic, or even human. Rather, there must be other individuals present in order for language use to be in any way representative of real-world interactions. In Digibahn, all interactions occur with posters, placards, or signs. While this is part of daily life, especially when in a foreign location, it constitutes only a part of the full spectrum of language use as encountered in the 'real world'.

Unlike in Language Trap, the notion of the Vygotskyean other appears to be currently absent from Digibahn. There is no mentor or sidekick to offer reminders or advice or assist the player to complete tasks, which is arguably one of the most clear, direct, and efficient manners in which to help the player achieve more than he or she might be capable of when working alone. ('*More capable other' is present (mentor, sidekick etc.) = 0/2.*) The on-screen text serves to tell the player what to do (e.g. "put the green bottle in the green glass recycling bin"), but does not act as a helper or guide. This early stage of Digibahn essentially involves the player mindlessly following a set of instructions for no reason other than to complete the task. The main sense of urgency is created by a timer counting down. Digibahn here lacks immersion, which is a key aspect of videogames.

Tasks within Digibahn are limited and somewhat repetitive, and do not offer alternative approaches for individual learners, nor is there a progressive difficulty level. (*Difficulty is appropriate to the learner = 2/4.*) Early in the game, the player repeatedly performs the same action, putting pieces of rubbish in the correct bin. *(New learning is integrated with prior knowledge; information is recycled = 1/2.)* The reasoning behind this task is to practise the way in which prepositions work in German, and, for example, the occasions on which they take the Accusative or Dative Case. In Digibahn, while the player gains experience of reading these prepositions in use, he or she does not get the opportunity to produce utterances or writing tasks using this learned information. Furthermore, the tasks in Digibahn do not hinge around an understanding of how these prepositions work; as long as the player can understand phrases such as *green bottle* and *green glass bin*, he or she can complete the task without needing to understand the rest of the instructions, prepositions included. This task could perhaps be improved by having the player complete a number of different actions, such as placing objects on, beside, under, or near other objects. Furthermore, there is no realistic use of language. The player exists in a ghost town. For Lemke (e.g. 2002, p. 71), the "ecosocial community" is integral to the human's "coming-to-use-language." Lemke posits (2002, p. 70) that these ecosocial systems consist of "social processes and semiotic practices, not of organisms." In the context of videogames such as Digibahn, but also language-based videogames more generally, this implies that there should be more to the game than simply performing a particular action. There needs to be an interactivity. While there is not necessarily a need for other 'real' people, there should, however, be at least some semblance of society, and more importantly of how the player might fit into that society. Videogames

offer the possibility of exploring potentially infinite roles within any given society, and allow the player to explore through trial and error how best to act out that role, be it that of a student, tourist, worker, or any other position which the game designer may choose to offer within a gameworld.

These criticisms of Digibahn must be taken in context; the version reviewed in this thesis is explicitly a prototype which has been created to showcase the potential of the Unity engine for use in language education. As Neville (2014b, personal correspondence) states: "I would consider the game a success as *it has raised some interesting questions* (at least I think so) *about how second languages will be taught in these immersive environments*" (Italics mine, parentheses in original). Thus Neville realises that his work to date is only a starting-point for a much larger project. This prototype represents only an early level of a potentially much larger videogame for teaching German language and culture. The creator of the game quite appropriately goes to lengths to point out that Digibahn is only one tool which may be used to teach the topics present in the game. He does not state that it is a perfect teaching tool which will work in isolation to make the user an expert in this subject area. Rather, it is designed to work in conjunction with other means of instruction as a tool to help practise and deepen the user's understanding of the material at hand. This is in line with Rankin, Gold and Gooch (2006, p. 1-2) who assert that "[t]hough video games provide motivation for learning, game-based learning does not necessarily result in positive learning outcomes [...] In contrast, game-informed learning uses game play components to facilitate learning process" (sic.) That is to say that videogames on their own are not necessarily effective tools, but when used in harmony with other means of instruction may prove rather more useful. As per Lombardi (2012), videogames should not be used as a means to *experiencing* a foreign language rather than as a language *teaching* tool *per se*.

Lombardi's view has been reflected in the design of Digibahn. Digibahn is not designed to work independently of a teacher and the expertise he or she brings to the topic. It is up to this instructor to pre-teach the material in Digibahn, in terms of recycling in Germany, cultural norms, and, of course, the manner in which the prepositions in question interact with the words upon which they act. (*Tasks have clear learning objectives which reflect curricular demands* = 2/2.) Furthermore, the version which is available for public download also offers more traditional materials such as handouts on recycling which are designed to be used in conjunction with the videogame itself. If viewed in this context, Digibahn does offer potential value as a teaching tool, provided that it is used appropriately and as intended. It is, however, limited linguistically, and at this stage in its development focusses solely on the player's reading skills and ability to follow instructions.

Chapter 4: Conclusions

4.1 Opportunities for Development

The creator of Digibahn offers suggestions for the future development of Digibahn which are extremely closely linked to the principles integral to this thesis. Specifically, he (Neville 2013) reflects on the importance of *Backstory*, *Game Insertion*, and the *First Level*. As regards the backstory, he states that the most promising idea for such is "something that the students see themselves potentially doing in the near future, such as spending a summer abroad to improve their German at a language institute and working a part-time job." Neville continues to offer a potentially breakthrough suggestion when he suggests that "[t]he idea of the language institute could be worked into the game in the form of the homework that students would need to do for their real-world class." This type of synthesis of real and virtual echoes this thesis's earlier assertion that real and virtual are no longer two discrete domains, and the ability to leverage this blending of worlds creates a learning system which truly reflects the realities of life in the 21st Century. This is later echoed when he discusses how the game may work as part of a language course, stating that "it would be best to design book (sic) around the activity systems of the game and not simply to overlay the game on an existing textbook." Rather than adapting technology to the curriculum, this exemplifies adapting the way educators teach to the realities of contemporary life, where technology is nothing less than an essential and integral part of how society functions, especially among those individuals designated as Gen Y or later. Castronova (2007, p. xiv-xv) refers to this as "practical virtual reality [which] is not scientific virtual reality, launched in the 1990s, which involves head-mounted displays and laboratory rooms with video projectors and surround sound." Rather, it is an "exodus of [...] people from the real world" in which "[m]any of us will find ourselves interacting in cyberspace much of the time."

Neville also offers a well-thought-out possibility for how a more complete version of Digibahn might function. Consistently with what has been discussed earlier in this paper, he recognises the importance of immersion and Vygotskyean mediation, and suggests that the earliest parts of the game might take place in a tourist office where the player essentially orients him or herself to the game's setting and mechanics. Neville also suggests that "[t]he person working in the information office could be a persistent game resource that a player could use when stuck with a problem that cannot be solved." This is an exemplary use of the Vygotskyean other in a videogame, an NPC who can be called upon when needed to help the player to do more than he or she can achieve all alone. Neville continues to outline how the early stages of the game might pan out, suggesting that the player might need to visit the city immigration office in order to apply for a residency permit. This would allow the player to practise physical descriptions and introducing oneself. The player might then proceed to making some deliveries for work, thus practising directions, and may then continue to complete some culturally-appropriate mini-quests in order to progress the game's narrative.

4.2 Discussion and Conclusion

Neville's aims and plans, as well as those shown by Language Trap, exemplify and showcase the manner in which videogames may be created and leveraged in order to best teach languages in light of a goal-driven, culturally-based model. It may be impractical or impossible for a learner or group to visit a region in which the language they are learning is spoken, but well-designed videogames may offer the opportunity to experience something of the language and culture in a safe and easily accessible way, in which errors are not severely punished, and where learners can practise new constructions or vocabulary without fear of any real sort of failure. This is the ultimate aim of further work arising from this current study. There is not necessarily one 'right' manner in which to create or select a videogame for use in the foreign-language classroom. It is incumbent upon the instructor as designer and/or implementer of the title to ensure that it is appropriate to the group, but also that it genuinely adds value to the language classroom. It should not be a distraction from learning. Rather it should *enhance* learning. Most of all, it should be a high-quality title, both ludically and linguistically. It should not depend on over-simplistic, behaviourist, task-and-reward models. It should, rather, be based upon models which allow for exploration and discovery, in which the learner finds out how to become a part of another society, to play a role in another culture, to become an inhabitant of another country, and all this perhaps without leaving the comfort, support, and safety of his or her own classroom.

Of great interest to the educator who lacks a background in computer programming is the concept of creating a game through the use of a game engine such as *Unity 3d*, *Torque* or *Unreal Engine*. These pieces of software allow the user to create game scenarios using already-extant assets such as character models, backgrounds, buildings, vehicles and so on. This ability allows games to be created in considerably less time than if they were programmed from scratch. It also allows for faster implementation of changes without having to adapt hundreds of lines of computer code. While they do offer somewhat less freedom overall with regards to the number of design choices the user may make, they would appear to be the most practical tool available to create language-learning videogames of potentially high quality. It must be noted, however, that these game engines do require that the user have more than a passing familiarity with how videogames work if he or she is to create something that is playable and worthwhile. If the user is not comfortable with the use of creative software he or she will find it extremely difficult to produce anything of note with one of the above listed game engines. They do not do all the work for the user; he or she must enter a large number of parameters with regards to the behaviour of the environment and characters. This will prove quite difficult for the novice user. Visual programming languages such as Microsoft's *Kodu* may offer an introduction to the very basics of game design, and offers support for educators. The pay-off for this increased design simplicity is an extremely limited number of options available for the user. That said, it is a relatively

straightforward and intuitive style which may prove to be a useful introduction to basic videogame design.

While there is perhaps not one single 'right' way to create a videogame as discussed earlier, there are a number of pitfalls that are to be avoided. At a basic level, any one videogame, indeed any one videogame genre, is not going to necessarily be of interest to all learners within a particular context. The instructor must be aware that his or her own personal preferences may not be the same as a proportion of the target group. That said, it appears that Role-Playing Games of various types perhaps offer most promise to the foreign language teacher. While these are more complex to create than many other genres such as shooters or racing games, their story- and narrative-based nature, coupled with the personalisation of avatars available to players, allow for deep immersion of players into the gameworld. This is an incredibly powerful trait of high-quality videogames, and reflects in a virtual manner the multiplicity of roles an individual may play in his or her life, or, more powerfully, the manner in which a well-designed title allows the player to experience a number of roles that they may never have the opportunity to play in real life. Just as commercial videogames may allow the player to become – if only for a short time – a professional athlete, soldier, astronaut or assassin, well-designed language-learning videogames afford the ability to experience something of the souks of Marrakesh, the markets of Paris or the architecture of Buenos Aires. Even more, while traditional media such as books, photographs, or films are passive experiences, videogames are active and immersive creatures, in which the player has a true sense of agency and the ability to create his or her own narratives and experiences.

One shortcoming which appears repeatedly in educational videogames in general, and those designed to teach language in particular, is that many of them lack both an immersive aspect and an up-to-date pedagogical foundation. While behaviourist models may be of specific and limited use among beginning learners, particularly in relation to the learning of vocabulary, they are of less use when creating immersive environments for more advanced learners. Many titles such as Language Perfect and Duolingo are based on these models, and are enjoying commercial success. This success may be in part due to their accessibility and straightforward gameplay, as well as their undemanding nature technologically. It may equally be due to the lack of alternatives available to the end user, either the private citizen or the educational institution. Text-based titles can be produced much more cheaply and quickly than more advanced titles, so from a purely economic standpoint it is understandable that producers might choose to create such titles rather than take a greater risk on a more complicated project. Of course, short-term economic considerations should not be the prime motivator in the sphere of education. If, however, there is a lack of interest on the larger scale in producing language-teaching videogames which attempt to reflect best practice, then it falls upon the shoulders of the classroom instructor, working either alone or with a team, to produce materials which attempt to allow the learner

to experience a foreign language in new and interesting ways. This is clearly an ambitious aim, but one worthy of serious consideration if language education is to truly enter the twenty-first century.

At this point, it is appropriate once more to emphasise the fact that simply using videogames in the classroom will not necessarily improve learner outcomes. It is highly unlikely that an instructor would choose to use a coursebook, or a newspaper article, or a website with his or her class without first becoming familiar with the structure, content, and underlying meaning and ideology of that artefact. He or she would ensure that the material provided was linguistically rich and appropriate to the intended group. Thorne and Fischer (2012, section 48) carried out an in-depth review of language use within the online World of Warcraft, and found that: "representative samples of quest texts and external websites, analysed at the level of individual sentences, reveal mean average complexity measures approximate to a secondary school reading level suitable for students aged 13-17 years." Taken at a surface level, this may make the use of this title appear quite promising for the high-school foreign language teacher, but, at Thorne and Fischer continue: "Closer analysis […] revealed a polarized distribution of sentences that clustered in two areas – those that are short and syntactically simple, and those that are long and highly complex." This is a pointed reminder that the instructor has an integral part to play in the design, implementation, and ongoing maintenance of any digitally-mediated tool which he or she chooses to use both in and out of the classroom. Any videogame or electronic resource must be appropriate to the level of the target learners. If the title has on online or chat-based aspect, then it must be borne in mind that this can be quite difficult for the instructor to police and control.

It is hoped that the work in hand may prove useful in a number of ways. Firstly, the rubric created in the earlier part of the thesis may prove useful for those instructors who wish to use currently extant videogames in their language classes, as each title's adherence or otherwise to the principles described in the rubric is indicative of its suitability for use in the classroom. In addition, it is hoped that this rubric may also prove useful as a checklist for those who wish to create their own digital language-learning materials for use by their students. As technology becomes an ever greater aspect of our daily lives, it is incumbent upon educators to leverage these new tools to assist language students to learn in ever more efficient and immersive manners. The potential for learning offered by pedagogically sound, yet entertaining, videogames is huge. It is hoped and envisaged that over the next number of years education will by necessity fully embrace new technologies in a manner which will be truly transformative of the way in which we teach and learn. To fail to do so would be to do a great disservice to students and educators alike.

4.3 Opportunities for further research

While videogames, both commercially and edutainment based, have been around for decades, education in general, and language education in particular, has thus far failed to even come close to

harnessing the potential of current technology. (That said, Wastiau, Kearney and Van den Berghe (2009) offer an informative report on how a number of European schools have successfully begun to implement videogames in the curriculum, as well as the findings related to this implementation.) There are many opportunities for specialists in the area of language education to create new and immersive ways of helping students to learn foreign languages. While this will necessitate a willingness to change and upskill, and an admission that the role of the classroom teacher is in the process of changing dramatically and irreversibly, new technologies offer a multitude of new ways of engaging with other languages and cultures in a previously unimagined way. This will require a coming together of game design knowledge and foreign language pedagogy in order to create titles that both engage and educate the player in memorable, meaningful ways. The next step along this path should be in the creation and rigorous analysis of good-quality, pedagogically-sound language learning videogames, accompanied by qualitative, quantitative and longitudinal studies into their efficacy and insertion into the curriculum. To this end, this author would like to echo the findings of Cornillie, Thorne and Desmet (2012, p. 245) who assert that "there clearly is strong pedagogical and research interest in gaming, but relatively few empirically supported studies have emerged that relate gaming experience to, for instance, gains on standard proficiency measures of L2 development."

The rubric itself has shown considerable merit and applicability within this study. In applying the rubric to a wider range of titles, and in a greater number of settings, it is hoped to test its user-friendliness and utility for language teachers other than the author. This may lead to further iterations of the rubric, most particularly the choice of rating scale. The possible weighting of particular aspects more heavily than others may be a useful area of research. As it stands, each criterion is weighted equally. Through application of this rubric in a number of scenarios, certain criteria may prove to be more important to others, particularly in relation to the *Ludic* portion of the rubric, and thus the scoring scale of the rubric may need to be adjusted to take this into account.

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The games analysed, and game engines mentioned, in this thesis may be sourced as follows:

Digibahn: http://digibahn.blogspot.com/2011/04/download-game-prototype.html

Duolingo: https://www.duolingo.com

Language Perfect: www.languageperfect.com (subscription-based)

Language Trap: http://seriousgames.cs.tcd.ie/

Kodu: http://www.kodugamelab.com

Torque: http://www.garagegames.com/products/torque-3d

Unity 3d: http://www.unity3d.com/game-engine

Unreal Engine: https://unrealengine.com

Appendix A (The LEVER)

There are two aspects to the rubric: The videogame as a game (ludic value) and the videogame as a teaching and learning tool (pedagogical value). The selection or creation of such a game should be based on the number of criteria fulfilled as per this rubric, paying heed to the necessity for the title to score highly on both the ludic and pedagogical aspects. In each of the right-hand columns, that particular aspect of the title should be rated as follows:

0 if absent;

1 if present in a limited manner;

2 if present in a clear and consistent manner.

Ludic Aspects	
Consistent, appropriate, and clear graphical, musical, and textual style	
Music and audio are appropriate, music can be turned off if desired	
Visuals appropriate to setting	
Textual style is appropriate to setting and curriculum	
Well-laid-out, easy-to-use interface	
Buttons are clearly labelled	
There is an option for "help" or "instructions"	
In-game menus are clear, easily-accessible, and helpful	
Clear rules, gameplay, and goals	
It is obvious to the player what he/she is to do	
There are no unfair surprises or inconsistent rules	
Gameplay achievements are allied to learning achievements	
Strong, story-driven plot	
Themes relevant to target user group	
Engaging complications in storyline	
Theme relevant to curricular themes	

Language Videogame Rubric

Creation of affective responses through characters and situations	
Player character is "likeable" and can be customised	
NPCs are fleshed out, and have personalities which are are "likeable" or "dislikeable"	
In-game problems involve a sense of urgency and/or stress	
Multiple paths allowing for different styles and tactics	
More than one "correct" way to solve problems	
Optional, more challenging situations are offered to more capable players	
Immediate and appropriate feedback	
Feedback is in-game, and involves rewards as appropriate	
Feedback is related to performance, and offers assistance as to possible improvements	
Sense of progress	
Tasks become more difficult as the game progresses	
On-screen avatar (if present) shows progress through new outfits, equipment etc.	
Learning tasks integrated within overall game (crossover with pedagogical aspects)	
Tasks make sense within overall context of the game, not merely "tacked on"	
Tasks reflect the curriculum and real-world scenarios	

Pedagogical Aspects	
Clear teaching and learning outcomes	
Tasks have clear learning objectives which reflect curricular demands	
New learning is integrated with prior knowledge; information is recycled	
Sound knowledge of the subject matter ('correctness')	
Language used is lexicogrammatically accurate	
Language is sociopragmatically appropriate	
Assessment of learning is integral to game progress	

Language Videogame Rubric

Task-based presentation of content	
New learning is used to 'do' things within the game	
Provides mediation and support for learning	
In-game help is available on demand	
'More capable other' is present (mentor, sidekick etc.)	
Difficulty is appropriate to the learner	
Prior learning is taken into account	
Tasks lie within the learner's ZPD (Goldilocks Zone: not too easy, not too hard)	
Social, interactive use of language	
Players use language with other avatars/NPCs	
A sense that the game takes place in a living, breathing setting	
Cultural appropriacy	
Setting makes sense in the context of the target language	
The game avoids sexism, racism etc.	

Language Videogame Rubric

Ludic Aspects	
Consistent, appropriate, and clear graphical, musical, and textual style	
Music and audio are appropriate, music can be turned off if desired	1
Visuals appropriate to setting	1
Textual style is appropriate to setting and curriculum	1
Well-laid-out, easy-to-use interface	
Buttons are clearly labelled	2
There is an option for "help" or "instructions"	2
In-game menus are clear, easily-accessible, and helpful	2
Clear rules, gameplay, and goals	
It is obvious to the player what he/she is to do	1
There are no unfair surprises or inconsistent rules	2
Gameplay achievements are allied to learning achievements	2
Strong, story-driven plot	
Themes relevant to target user group	0
Engaging complications in storyline	0
Theme relevant to curricular themes	0
Creation of affective responses through characters and situations	
Player character is "likeable" and can be customised	0
NPCs are fleshed out, and have personalities which are "likeable" or "dislikeable"	0
In-game problems involve a sense of urgency and/or stress	1
Multiple paths allowing for different styles and tactics	
More than one "correct" way to solve problems	0
Optional, more challenging situations are offered to more capable players	1

Language Videogame Rubric

Immediate and appropriate feedback	
Feedback is in-game, and involves rewards as appropriate	2
Feedback is related to performance, and offers assistance as to possible improvements	2
Sense of progress	
Tasks become more difficult as the game progresses	0
On-screen avatar (if present) shows progress through new outfits, equipment etc.	0
Learning tasks integrated within overall game (crossover with pedagogical aspects)	
Tasks make sense within overall context of the game, not merely "tacked on"	0
Tasks reflect the curriculum and real-world scenarios	0

Pedagogical Aspects	
Clear teaching and learning outcomes	
Tasks have clear learning objectives which reflect curricular demands	0
New learning is integrated with prior knowledge; information is recycled	0
Sound knowledge of the subject matter ('correctness')	
Language used is lexicogrammatically accurate	2
Language is sociopragmatically appropriate	0
Assessment of learning is integral to game progress	2
Task-based presentation of content	
New learning is used to 'do' things within the game	0
Provides mediation and support for learning	
In-game help is available on demand	1
'More capable other' is present (mentor, sidekick etc.)	1
Difficulty is appropriate to the learner	
Prior learning is taken into account	0
Tasks lie within the learner's ZPD (Goldilocks Zone: not too easy, not too hard)	0

Social, interactive use of language	
Players use language with other avatars/NPCs	0
A sense that the game takes place in a living, breathing setting	0
Cultural appropriacy	
Setting makes sense in the context of the target language	0
The game avoids sexism, racism etc.	2

Appendix C: Language Perfect

Ludic Aspects	
Consistent, appropriate, and clear graphical, musical, and textual style	
Music and audio are appropriate, music can be turned off if desired	1
Visuals appropriate to setting	1
Textual style is appropriate to setting and curriculum	1
Well-laid-out, easy-to-use interface	
Buttons are clearly labelled	2
There is an option for "help" or "instructions"	1
In-game menus are clear, easily-accessible, and helpful	1
Clear rules, gameplay, and goals	
It is obvious to the player what he/she is to do	1
There are no unfair surprises or inconsistent rules	2
Gameplay achievements are allied to learning achievements	2
Strong, story-driven plot	
Themes relevant to target user group	0
Engaging complications in storyline	0
Theme relevant to curricular themes	0
Creation of affective responses through characters and situations	
Player character is "likeable" and can be customised	0
NPCs are fleshed out, and have personalities which are "likeable" or "dislikeable"	0
In-game problems involve a sense of urgency and/or stress	1
Multiple paths allowing for different styles and tactics	
More than one "correct" way to solve problems	0
Optional, more challenging situations are offered to more capable players	0

Language Videogame Rubric

Immediate and appropriate feedback	
Feedback is in-game, and involves rewards as appropriate	1
Feedback is related to performance, and offers assistance as to possible improvements	1
Sense of progress	
Tasks become more difficult as the game progresses	0
On-screen avatar (if present) shows progress through new outfits, equipment etc.	0
Learning tasks integrated within overall game (crossover with pedagogical aspects)	
Tasks make sense within overall context of the game, not merely "tacked on"	0
Tasks reflect the curriculum and real-world scenarios	0

Pedagogical Aspects	
Clear teaching and learning outcomes	
Tasks have clear learning objectives which reflect curricular demands	1
New learning is integrated with prior knowledge; information is recycled	0
Sound knowledge of the subject matter ('correctness')	
Language used is lexicogrammatically accurate	2
Language is sociopragmatically appropriate	0
Assessment of learning is integral to game progress	0
Task-based presentation of content	
New learning is used to 'do' things within the game	0
Provides mediation and support for learning	
In-game help is available on demand	1
'More capable other' is present (mentor, sidekick etc.)	0
Difficulty is appropriate to the learner	
Prior learning is taken into account	0
Tasks lie within the learner's ZPD (Goldilocks Zone: not too easy, not too hard)	0

Social, interactive use of language	
Players use language with other avatars/NPCs	0
A sense that the game takes place in a living, breathing setting	0
Cultural appropriacy	
Setting makes sense in the context of the target language	0
The game avoids sexism, racism etc.	2

Appendix D: Language Trap

Ludic Aspects	
Consistent, appropriate, and clear graphical, musical, and textual style	
Music and audio are appropriate, music can be turned off if desired	2
Visuals appropriate to setting	2
Textual style is appropriate to setting and curriculum	2
Well-laid-out, easy-to-use interface	
Buttons are clearly labelled	2
There is an option for "help" or "instructions"	2
In-game menus are clear, easily-accessible, and helpful	1
Clear rules, gameplay, and goals	
It is obvious to the player what he/she is to do	2
There are no unfair surprises or inconsistent rules	2
Gameplay achievements are allied to learning achievements	2
Strong, story-driven plot	
Themes relevant to target user group	2
Engaging complications in storyline	2
Theme relevant to curricular themes	2
Creation of affective responses through characters and situations	
Player character is "likeable" and can be customised	1
NPCs are fleshed out, and have personalities which are "likeable" or "dislikeable"	1
In-game problems involve a sense of urgency and/or stress	2
Multiple paths allowing for different styles and tactics	
More than one "correct" way to solve problems	1
Optional, more challenging situations are offered to more capable players	0

Language Videogame Rubric

Immediate and appropriate feedback	
Feedback is in-game, and involves rewards as appropriate	1
Feedback is related to performance, and offers assistance as to possible improvements	1
Sense of progress	
Tasks become more difficult as the game progresses	1
On-screen avatar (if present) shows progress through new outfits, equipment etc.	0
Learning tasks integrated within overall game (crossover with pedagogical aspects)	
Tasks make sense within overall context of the game, not merely "tacked on"	2
Tasks reflect the curriculum and real-world scenarios	2

Pedagogical Aspects	
Clear teaching and learning outcomes	
Tasks have clear learning objectives which reflect curricular demands	2
New learning is integrated with prior knowledge; information is recycled	1
Sound knowledge of the subject matter ('correctness')	
Language used is lexicogrammatically accurate	2
Language is sociopragmatically appropriate	2
Assessment of learning is integral to game progress	2
Task-based presentation of content	
New learning is used to 'do' things within the game	2
Provides mediation and support for learning	
In-game help is available on demand	1
'More capable other' is present (mentor, sidekick etc.)	2
Difficulty is appropriate to the learner	
Prior learning is taken into account	1
Tasks lie within the learner's ZPD (Goldilocks Zone: not too easy, not too hard)	1

Language Videogame Rubric

Social, interactive use of language	
Players use language with other avatars/NPCs	2
A sense that the game takes place in a living, breathing setting	2
Cultural appropriacy	
Setting makes sense in the context of the target language	2
The game avoids sexism, racism etc.	1

Language Videogame Rubric

Appendix E: Digibahn

Ludic Aspects	
Consistent, appropriate, and clear graphical, musical, and textual style	
Music and audio are appropriate, music can be turned off if desired	2
Visuals appropriate to setting	2
Textual style is appropriate to setting and curriculum	2
Well-laid-out, easy-to-use interface	
Buttons are clearly labelled	2
There is an option for "help" or "instructions"	2
In-game menus are clear, easily-accessible, and helpful	2
Clear rules, gameplay, and goals	
It is obvious to the player what he/she is to do	2
There are no unfair surprises or inconsistent rules	2
Gameplay achievements are allied to learning achievements	2
Strong, story-driven plot	
Themes relevant to target user group	2
Engaging complications in storyline	1
Theme relevant to curricular themes	2
Creation of affective responses through characters and situations	
Player character is "likeable" and can be customised	0
NPCs are fleshed out, and have personalities which are "likeable" or "dislikeable"	0
In-game problems involve a sense of urgency and/or stress	1
Multiple paths allowing for different styles and tactics	
More than one "correct" way to solve problems	1
Optional, more challenging situations are offered to more capable players	0

Language Videogame Rubric

Immediate and appropriate feedback	
Feedback is in-game, and involves rewards as appropriate	1
Feedback is related to performance, and offers assistance as to possible improvements	2
Sense of progress	
Tasks become more difficult as the game progresses	0
On-screen avatar (if present) shows progress through new outfits, equipment etc.	0
Learning tasks integrated within overall game (crossover with pedagogical aspects)	
Tasks make sense within overall context of the game, not merely "tacked on"	2
Tasks reflect the curriculum and real-world scenarios	2

Pedagogical Aspects	
Clear teaching and learning outcomes	
Tasks have clear learning objectives which reflect curricular demands	2
New learning is integrated with prior knowledge; information is recycled	1
Sound knowledge of the subject matter ('correctness')	
Language used is lexicogrammatically accurate	2
Language is sociopragmatically appropriate	1
Assessment of learning is integral to game progress	2
Task-based presentation of content	
New learning is used to 'do' things within the game	2
Provides mediation and support for learning	
In-game help is available on demand	2
'More capable other' is present (mentor, sidekick etc.)	0
Difficulty is appropriate to the learner	
Prior learning is taken into account	1
Tasks lie within the learner's ZPD (Goldilocks Zone: not too easy, not too hard)	1

Language Videogame Rubric

Social, interactive use of language	
Players use language with other avatars/NPCs	0
A sense that the game takes place in a living, breathing setting	0
Cultural appropriacy	
Setting makes sense in the context of the target language	2
The game avoids sexism, racism etc.	2

Appendix F: LEVER Element Theoretical Underpinnings

Ludic Aspects	
Criterion	**Justification/Reference**
Consistent, appropriate, and clear graphical, musical, and textual style	Novak (2012), principles of videogame design
Well-laid-out, easy-to-use interface	Purushotma, Thorne and Wheatley (2009), principles for designing video games for language learning; Novak (2012), principles of videogame design
Clear rules, gameplay, and goals	Vandercruysse, Vandewaetere and Clarebout (2012), Game-based Learning
Strong, story-driven plot	Novak (2012), principles of videogame design; Vandercruysse, Vandewaetere and Clarebout (2012), Game-based Learning
Creation of affective responses through characters and situations	Lazzaro (in Fullerton, 2008), 4 Fun Keys
Multiple paths allowing for different styles and tactics	Fullerton (2008), principles of videogame design
Immediate and appropriate feedback	McGonigal (2011); Purushotma, Thorne and Wheatley (2009), principles for designing video games for language learning
Sense of progress	Novak (2012), principles of videogame design;, Vandercruysse, Vandewaetere and Clarebout (2012), Game-based Learning
Learning tasks integrated within overall game (crossover with pedagogical aspects)	Lombardi (2012), Ludic Methodology

Pedagogical Aspects	
Criterion	**Justification/Reference**
Clear teaching and learning outcomes	Peterson (2010), previous work on MMORPGs and language learning; Blake (2013), titles must "support specific L2 learning tasks"; Griffiths (2002), "enlightenment not entertainment"
Sound knowledge of the subject matter ('correctness')	Shulman's, (1987) forms of teacher knowledge, especially "content knowledge".
Task-based presentation of content	Halliday (1993), Systemic Functional Grammar; Malinowski (1966), language is "primarily an instrument of action"
Provides mediation and support for learning	Vygotsky (1999), Zone of Proximal Development
Difficulty is appropriate to the learner	Vygotsky (1999), Zone of Proximal Development
Social, interactive use of language	Halliday (1978), Language as a Social Semiotic; Kern (2000), opposition to Structuralism; Egenfeldt-Nielsen (2006), opposition to Behaviourism
Cultural appropriacy	Malinowsi (1923), language is "rooted in the reality of the culture"; Ochs and Schieffelin (1984), language use must be "socially appropriate and culturally meaningful"; Lombardi (2012), Ludic Methodology