LANGUAGE DETECTIVE

Intellectual Output 1 – Document A

Informal and Non-formal Education Models – Applications, Strengths and Weaknesses

Language Detective – Interaction-Based Language Learning
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Scope

Informal and non-formal learning deviates from the usual learning patterns as it aims to achieve a goal, for instance, solving a problem by utilizing different tools and media. The scope of this document is to research and assess what constitutes informal and nonformal learning as well as how to best implement teaching tools based on such learning. Finally, this document aims to assess how effective these learning models really are especially when compared to traditional learning models.

Types of Learning

The main type of learning system that we are all accustomed to is formal learning as this is based on educational institutions and systems, and traditionally, follows a syllabus where learning is the main goal of all activities carried out. Typically the end result of such activities is measured by a test, exam or other standardized method.

Non-formal learning, on the other hand, departs from the traditional model whilst still following a framework. The learner in this case is still pursuing a goal to learn although there does not strictly need to be a syllabus or an assessment. The main goal of non-formal learning is to acquire a desired skill or further an area of knowledge.

Informal learning finally is a type of activity where the primary goal would not be learning per se but learning comes as a consequence of such activity. Informal learning is driven by curiosity, objectives, passion and motivation amongst others. It gives the learner complete control on what they want to learn.

Learning a language for instance can be accomplished by following any or a combination of the types of learning listed above.

“When Children acquire their first language they do so not because they are taught. Their learning is an incidental result of their participation in family life, and the linguistic skills they develop and concepts they master reflect the practices of their immediate environment,” (Council of Europe).

Non-formal and informal learning are confused with one another, but it is important to differentiate between them as non-formal methods still have a curriculum and most of the times a facilitator. The learner engages voluntarily with the aim to learn and acquire new skills.

Common grounds between Non-Formal and Informal Learning

The two types of learning, in spite of being distinct, do share common characteristics which are worth looking into, such as:

1) Learning takes place away from the usual lecture halls and venues and may take place at a variety of locations.
2) The activity focuses on the individual or group rather than the topic to be learned.
3) There is a scope or outcome to the activity.
4) There is flexibility on the methods used.

An interesting comparison between the two methods can be summed up as:

"The terms informal and non-formal appeared interchangeable, each being primarily defined in opposition to the dominant formal education system, and the largely individualist and acquisitional conceptualisations of learning developed in relation to such educational contexts." (Hodkinson et al., 2003)

According to UNESCO (2010), non-formal education helps to ensure equal access to education.

Advantages of Non-Formal and Informal Learning

Non-formal education offers young people the opportunity to choose a model and program tailored to their needs and gives them flexibility and freedom to explore their interests. Non-formal learning enables the learner to learn by experiencing thus enhancing skills and knowledge that would not otherwise be possible in a classroom environment.

On the other hand, informal learning is something that a good percentage of adults have engaged in and are statistically more likely to engage in than traditional learning. As with non-formal learning, a learning model that is more learner centered tends to be more attractive than rigid curricula that most of us experienced growing up.

Adults and young adults thrive when learning is self-directed and under their control. Moreover, a relaxed experience that doesn’t necessarily rely on traditional exams and assessment methods reduces the tension associated with learning but this does not mean that knowledge is not gained. As a matter of fact, such learning methods are at least equally effective at delivering knowledge and skills as traditional methods. Informal and Non-formal

methods typically are less time and resource intensive and hence can prove beneficial also for activities such as on-the-job training.

"Organic, unstructured and learner-driven informal

learner theory is thought to be how we, as humans learn

around 90% of the time" (O'Neill, E. 2019)

Professor Cheng, K. of the University of Hong Kong identified key points that show that alternative learning models are compatible with effective learning. Amongst others, he highlights:

- Learning as being the "construction of knowledge by the learner", hence learner driven methods prove to be very efficient.
- Learning being related to experience and taking place during practical and pragmatic scenarios, which once again is compatible with non-traditional methods.
- Learning being "most effective in groups" which is a key method of informal and nonformal learning activities.
- And finally, that different individuals learn in different ways, hence emphasizing the need for tailormade and learner focused activities.

The 4 Pillars of Education

In 1996 UNESCO set out 4 pillars of education that helped to better understand what learning is about. The 4 pillars are summed up below:

Learning to Know – The basic knowledge we need to understand our environment, the arousal of curiosity which allow human beings to experience research and discovery. Learning to know means learning to develop one's ability to think and concentrate.

Learning to Do – Is about acquiring practical skills, but also about interacting with team members, developing initiative and assessing risks. Learning to do means being able to put what was learned into practice and to be able to turn knowledge into results.

Learning to Live Together – Is to be able to dialogue, develop respect and appreciation. It is about understanding oneself and others which is key to be able to grow and learn in society.

Learning to Be - Is the fundamental factor that education needs to foster for individual development. It is the necessary drive to think, feel and act based on acquired knowledge, skills and competences.

These four pillars blend well with all three modes of education be it formal, non-formal and informal, with each learning model interacting differently and contributing in its own way to the theory highlighted by UNESCO.

What classifies as non-traditional learning? (non/informal)

Non-traditional learning can take many shapes and forms and some key examples are illustrated below:

- Quizzes – are fun and inspire competitivity between members of a group, they can help to gauge the level of understanding of a particular topic, skill or subject and reinforce key concepts. A quiz can bring learning outside a traditional classroom.
- Mentoring – where a mentor or facilitator shares knowledge and key experiences with a learner. This is different to a teacher – pupil relationship as a mentoring process is more hands-on and pragmatic and does not necessarily follow a strict syllabus but is more focused on learner needs and problem solving. This is particularly useful at a place of work or for acquiring skills.
- Video platforms – video resources are typically simple, practical and show real life examples, beyond of what can be carried out in a classroom environment. Sites such as YouTube are rich in learning resources. However, media used in educational settings should preferably be vetted by an experienced facilitator to ensure that the content is accurate in conveying the intended knowledge.
- Research – voluntary study or research is nowadays a key process in acquiring skills. This complements formal training and may be carried out with or without supervision. Trainees can potentially focus on topics they feel require more attention and skip those with which they are more familiar, eliminating wasted time and maximizing the value of their time. Moreover, research is a skill in itself which unlocks further potential as the trainee gets better at it.
- Team activities – be it online or in the field are good non-traditional learning examples. Combining various talents to achieve a common goal is in itself a good resource management activity and can be honed and harnessed to achieve a learning outcome or

any other goal where learning can be a main objective in case of non-formal learning or as an additional benefit in case of informal learning.

- Games – such as computer games, table games or games in the form of team activities as previously highlighted can be extremely productive in delivering learning outcomes. With technology becoming more powerful and portable, the potential of games has grown exponentially. It can be seen that the use of engaging virtual environments is extremely beneficial and helps to guarantee a sustained interest on the part of the trainee or learner.
- Practical experience – which includes internships, placements, job rotation and other professional or voluntary experiential activities are a useful and proven way to acquire knowledge and skills, whilst maintaining learner engagement. When a learner trains by copying a process, this has been shown to be effective at producing desired results.
- Social media – cannot be ignored as a learning tool, with various groups and forums available on a multitude of topics, this can be considered as a form of virtual mentoring. Experienced users typically share tips, life hacks and experiences which are useful to a potential learner. However, a word of caution is that a trainee should be careful and able to verify the veracity of gained knowledge by utilizing other tools such as research.
- Seminars, Webinars and Conferences – These tools deviate from formal learning activities and offer the chance to learn a topic from subject matter experts as well as to network, further enhancing knowledge transfer.

The use of games in non-formal education

In the past decade society has become more affiliated, driven and influenced by technology in such a way that we are now living in a world where we are introduced to the latter at a very young age and "children have grown to develop thinking patterns and processes different from previous generations" (Prensky, M. 2001). This is why education is changing and has to change as traditional methods are no longer suitable to today's reality. Three core terms shall be looked at:

1. Digital Game-Based Learning looks into video games that give learners the opportunity to acquire skills (Privec, M. 2007).
2. Serious Games, have a clear educational scope with entertainment being irrelevant and this would encompass professional and corporate training.

3. Edutainment, refers to educating and entertaining audiences at the same time (Makarius, E. 2017) where the focus would be the fun and attractive factor of non-formal learning. In this category, for instance, narrative and visuals are of paramount importance to keep the learner engaged.

The three-core learning-digital game terms are not mutually exclusive and actually complement each other in a symbiotic way.

"Game-Based Learning, at its core, is about bringing enjoyment

and learning objectives together in an engaging and

exciting new medium" – (Prensky, M. 2001)

Serious games or edutainment alone cannot support Game-Base Learning, hence a combination of all three is considered as the most effective approach.

Despite of their effectiveness, games have failed to be widely included into formal educational programs for one main reason – technology. Regardless of the educational value of a game, its creation comes at a high cost and requires expertise. However, recent advancements have now put this technology more within reach, which unlocks the potential deployment of such systems.

"The active inclusion of videogames in the educational curriculums

of all academic levels has indisputable importance"- (De Aguilera & Mendiz, 2003)

The pitfalls of non-formal and informal education

As with everything else, non-formal education has its limitations and disadvantages and research into the matter yielded some short comings when compared to formal education:

- There may be instances where human interaction is limited and hence learning of soft skills usually associated with such interaction may suffer.
- Since this type of education is learner driven there may be gaps in the acquired knowledge when compared to a formal curriculum.
- There is plenty of misinformation on media platforms which can lead to acquiring false truths.
- There is an absence of discipline amongst learners.

- No or limited assessment methods make it difficult to gauge progress.
- Results may be highly unpredictable.

Conclusions

Based on conducted readings, it becomes clear that no system is perfect be it formal, non-formal or informal systems. However, it is also evident that if the strengths and weaknesses of each system are known, a hybrid model which harnesses the key advantages of each model, can be successfully built and implemented.

In general, a system which has some sort of structured content, but yet offers flexibility to the learner, would be a good approach. A facilitator or facilitating platform which is built on the expertise of professionals is a must to vet the information being made available to the learner. Whilst the latter's drive to learn is key, it is important to introduce an element of entertainment and engagement in the system, perhaps with a pragmatic approach showing real world applications and scenarios of what is being learned. It is also evident that digital game platforms can offer a good foundation which blends together elements for the 3 learning models but, most probably, the focus should be on non-formal models with a slight bias towards the formal learning methodology.

Teamwork, interaction and flexibility should be encouraged by the system being undertaken and it is important to be able to gauge learner progress by using assessment methods which might vary from the traditional methods and can possibly be concealed into the platform being developed. Assessment methods can take the forms of trivia, riddles, or problem-solving aspects in the tool being developed.

It is key that the tool / platform delivers the content of the curriculum fully and without gaps to ensure complete knowledge transfer, and creativity is key in creating such immersive and engaging contents.

It is clear that times have changed, people have changed and expectations have also shifted, hence continuous adaptation of educational vectors in the right direction is a must. If the educational methods fail to shift and adapt with times, we might find ourselves with something as obsolete as a filament bulb. Non-formal education and technology have yet to play a major role in our education and that of future generations.

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LANGUAGE DETECTIVE

Intellectual Output 1 – Document B

Key aspects in learning a foreign language

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Scope

Whilst the mother tongue is typically learned by a child at an early age through informal means and family life, it is typically more difficult to grasp a second or third language. This document looks at what is required to successfully learn an additional language as well as what are the recommended methods for transferring such knowledge to a potential learner.

Benefits of learning a foreign language

An additional language opens the gateway to a multitude of benefits, aside from the obvious ability to communicate better with a target audience, learning a language enhances a learner's other skills and abilities.

The process of learning a new language significantly boosts brain power and critical thinking skills which are beneficial professionally and personally. Memory also sees a marked improvement as the brain is not only better trained to recall words but also facts and figures. Multilingual people who possess the skill to think in more than one language and transition seamlessly between the two are better at multitasking (according to the Pennsylvania State University). These newly gained abilities inherently enhance decision making skills as well as potentially improving performance in other academic areas. Hence, learning a language is beneficial far beyond the perceived scope of simply being able to communicate.

Key elements in learning a language

This section offers an insight into what the key requirements to learning a new language are.

Conversation, opportunities to converse, communicate and ask questions about a language. This is far more beneficial than traditional learning methods because it also keeps the learner motivated and deals pragmatically with situations. Being forced to use a word in conversation is far more effective in memorizing it than simply learning it.

Immersive study is more effective than simply learning a few words at a time. Learner focus for an intense but short span of time is more effective than longer sessions with lower commitment.

Learner focused coursework is also key as no two learners are identical and hence proper gauging of a learner's skills and coursework adaptation to target a particular learner is an aspect that should be looked into carefully.

Clearly defined goals and objectives which are measurable and achievable are a crucial element when learning a new language. SMART targets can help in this aspect. SMART signifies that objective should be Specific, Measurable, Attainable, Relevant and have clear Timelines.

Engaging in learning the most common words first, for instance learning the 100 most commonly used words first, is more beneficial than simply learning by category.

Harnessing the power of technology – whether using translation tools, dictionaries or simply using subtitles is also vital for learning a new language.

Engaging in challenges, such as scenarios or situations where use of the new language is required, helps build confidence and fluency.

Learning language patterns, such as pronunciation patterns, is also useful and helpful.

When learning a new word, a learner should put it to use straight away in order to quickly grasp its use in the context of a new language.

Watching videos, movies and television in a particular language enhances gained knowledge and unlocks further potential.

Ensuring that learner engagement is maintained throughout the process is also vital to the process of learning a language. As with most learning processes, learner motivation and drive are the key to success, and being able to maintain the learner's interest in the topic or task at hand is of paramount importance.

Key mistakes in language learning process

As with any process, there are common modes of failure in learning a language. Being aware of such failures helps a potential learner and content creator detect and avoid such shortcomings before they become problematic to the process.

For instance, one of the most common pitfalls is the learner not accepting that there are plenty of mistakes to be made. A learner should not be demotivated by a mistake and the awareness that a mistake was made is an opportunity to learn and retry in order to get it right. Hence, mistakes should not be penalized but seen as an opportunity to learn and improve.

Not understanding that each learner is different can also be a problematic. Content creators should try to understand and vary the content to appeal to different types of learners and

different learning scenarios. Ideally learners should be given a choice on the vector as to how to acquire a particular piece of knowledge.

Focusing too much on grammar early on can also create a stalling point. It is imperative to start with the easy parts of grammar before attempting to understand and compile more advanced examples. This might seem like an obvious point but most learners tend to focus mostly on grammar and forget the importance of conversation as a core for learning a language.

Focusing broadly on vocabulary is another mistake, as previously highlighted the 100 most common words are a good place to start as they probably account for about 50% of all conversation. Hence, whilst vocabulary is important, it is imperative to make it count. Learning technical words is of very little benefit in everyday life.

Not using vocabulary to build sentences is yet another key failure. It is important that the elements of vocabulary being learned can be combined to form a sentence like the pieces of a puzzle. Learning single words in isolation will not yield very useful results.

Believing that the only way to learn a language is to live overseas and use only traditional learning methods are the only ways to effectively learn. In reality, many more tools are available which offer immersion and use of technology without the rigidity of traditional methods.

Not getting used to the speed of native conversation is yet another pitfall of language learning as it is important to get accustomed to the speed and pronunciation of normal conversation and to learn to associate written words to sounds. As a matter of fact, starting with sounds rather than with reading and writing should be prioritized and not doing so is often a mistake associated with traditional methods.

Stressing on pronunciation, is a further key mistake. Pronunciation comes naturally with time and the initial focus should be to actually learn the words whilst perfecting how they sound should come at a later stage.

Advancing too quickly is the final pitfall in foreign language learning. The facilitator or content creator should ensure that the learner is nor overwhelmed by a barrage of information and has reasonable time to process and absorb the knowledge being passed on.

Creating content for language learning

A useful tool in creating language teaching content is the SIOP (Sheltered Instruction Observation Protocol) (Short, D. et. Al. – 2016) which was originally intended for English language tuition. The model essentially focuses on eight key components

1) Lesson Preparation
2) Building Background
3) Comprehensible Input
4) Strategies
5) Interaction
6) Practice and Application
7) Lesson Delivery
8) Review and Assessment

SIOP starts by assessing a student's age, level and experiences and developing tailormade material in order to be able to reach an objective. Some examples useful for creating contents using SIOP are shown in the table below:

Listening	Speaking	Reading	Writing
draw a picture	name	preview and predict	create complete sentences
role play	discuss	find specific information	summarize
answer questions	explain	read fluently	list
listen and retell	ask and answer questions	identify main idea	compare
follow directions	summarize	determine fact vs. opinion	explain
demonstrate	evaluate	scan	create a poem
distinguish between	clarify	identify vocabulary	write questions and/or answers
record	justify	infer	diagram

Figure 1 – SIOP Content creation – (Adapted from Short, D., et. Al. 2016)

The content created should relate to a learner's background experiences and there should be a direct link with what the student already knows. There is a correlation between vocabulary knowledge and student achievement.

The content created must be comprehensible to the student, that is, the student should be able to understand what is being communicated and conveyed. Typically using step by step instructions or visuals and allowing repetition helps achieve this.

Next a suitable strategy should be developed to deliver the content being created, a suitable delivery method and effective assistance should be provided to the learner, where the level of assistance being reduced as the student progresses.

It is important to give the learner opportunities to interact with settings or content. An interactive environment is conducive to immersion and maintains engagement / motivation, all of which are crucial for effective learning.

A step further to interaction is giving the student the opportunity to practice and apply what is learned, hence activities which make use of the acquired skills and knowledge are integrated into the learning routine.

Lesson delivery deals with effective transfer of the required knowledge to reach the intended targets and goals. Whatever teaching medium is chosen it is important that the medium is successful in delivering the full data required to reach the chosen outcome.

Finally, a review or assessment method is typically required to enable us to close off the loop. This step is key in determining the level of improvement and the effectiveness of the previous steps. Assessment methods should be used to verify the suitability of the training material rather then to classify the student. If need be, the training material is adapted or supplemented to bridge the gap and reach the desired goal.

The components of SIOP can in fact be an effective tool in teaching any language since they focus on generic language tuition rather than one specific language. The tools can be used as a guideline to develop the necessary media required to successfully teach a foreign language.

Summary of Findings

This section is meant to gather key findings as to what content creators should be looking at in order to develop a suitable tool or coursework for teaching a foreign language. Based on readings conducted, the following points serve as a quick start guide in creating such a tool.

1) Find a way to assess the level of a learner and gain insight into his level, background and interests.
2) Determine and set SMART goals that the coursework aims to reach.
3) Build a database with the most common words and phrases which should be given priority in the teaching syllabus.
4) Use technology to engage the learner and deliver clear and understandable content.
5) Give the opportunity to participate in teamwork, and converse whenever possible.
6) Create practical scenarios and problem-solving games and tasks.
7) Keep the session duration to short intensive bursts to maintain engagement.
8) Find suitable methods of assessment that gauge performance but do not penalize or demotivate the learner.

Conclusion

Whilst learning a language is a complex task, this is entirely achievable with the right tools and delivery methods. It can be seen that current methodologies focus mainly on a starting point, a goal and plotting a route in between. Various methods and tactics have been developed to cater for such journeys. An analogous example can be found in quality departments where tools such as the Deming Cycle (known as Plan Do Check Act) or DMAIC (Define Measure Analyze Improve and Control) used in Lean Six Sigma are all testimony of the importance of pre-assessing the learner, setting a goal, deliver the required skills and knowledge and re-assess. The cycle can then be repeated until the required level of proficiency is met. In order to create a viable delivery tool, the components identified in the previous section must be properly implemented in order to guarantee a successful outcome, where a learner stands to benefit and improve in the desired direction.

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LANGUAGE DETECTIVE

Intellectual Output 1 – Document C

Digital games as an educational tool

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Scope

Digital games are typically associated with the entertainment industry and are generally perceived as a hobby or past time, especially for the younger generations. However, do digital games hold potential with respect to learning and as a teaching tool or medium? The aim of this document is to investigate the usefulness of digital games in the educational sector as well as what features make them strong contenders especially in the field of non-formal learning. What are the weaknesses and limitations of digital games as an educational tool and how can these be addressed or avoided?

Overview of digital gaming

Digital games and networking have already infiltrated our homes and our lives, as the world has changed and technology has evolved over the last decade, gaming has become more widespread and common in everyone's lives. The mere concept of holding a smart phone in your pocket which is more powerful than a high-end computer from merely a decade ago is mind blowing. Entertainment software is used by a lot of individuals regardless of age, culture or country (Chow, A.F. – 2010). Children and young adults are spending many hours a day connected and immersed in such technologies, which might appear as a waste of time. There is however a sliver lining to what's happening around us, if these technologies could be harnessed as a learning medium then the potential for knowledge transfer would be huge.

"Digital games use technology to represent reality or embody fantasy.
They provide an environment in which action can be practiced or rehearsed with,
ultimately, little consequence" – (O'Brien, D – 2010)

This inherent feature of digital gaming provides an opportunity to develop a learning tool where reality can be simulated and skills can be practiced over and over again with no detrimental effect but only the beneficial outcome of self-improvement. In general, games are engaged in to achieve a target, which means that this goal can be altered to reflect the educational needs of a learner. The entertainment factor of a game is the gameplay itself and the engagement is typically the challenge that lies within the gameplay. The player expects a certain level of difficulty to be encountered, without which there can be no psychological reward. Hence providing the right level of challenge is a key aspect of digital gaming.

"What is captivating for players about games tends to be their structure
rather than their content. Structure involves dynamic visuals,
interaction and the presence of goals and rules that govern play" – (Wang, et. Al. – 2010)

This ultimately means that the creator is flexible in deciding upon the content as long as the captivating element of the game is still present. If the game is to be used as a learning tool, this means that curriculum content could be delivered without compromising the entertainment factor of the game. Gaming and gameplay offer no external reward and the latter is intrinsically motivating. The user is offered control and interaction, and this is part of the charm of digital gaming.

The use of games as an educational tool

The potential of games as a learning tool stems from the fact that gamers are typically perseverant in their tasks, show problem solving traits and a great deal of attention to detail. These are all skills which would be invaluable when applied to a learning environment. Also, a well-designed platform allows users to progress at their own rate and take paths in line with their personal preferences which is ideal in an educational scenario (Becker, K. – 2007).

A possible outlook towards using games for educational purposes is that game designers aim to improve and develop the learner's skills during gameplay. Commercially available games are already useful at developing collaboration, innovation and problem-solving skills. The problem with this outlook is that it ignores completely the aspect of school curriculums and focuses instead on other capabilities.

Another point of view is that of integrating digital games into existing educational models, which comes with some hurdles that must be addressed and overcome.

Potential obstacles in using digital games as a learning tool

When digital games are coupled with more traditional learning models, it needs to be ensured that syllabus areas are covered for a seamless transition to this new delivery method. Human beings are known to be resilient to change and, hence, implementing such learning methods might be met with skepticism and resistance. This might be couple with not having the right equipment, obsolete or nonexistent infrastructure to support such teaching tools. Moreover, educators might be unfamiliar with games and digital games which require a great deal of expertise to code and develop. These pockets of vacuum in understanding games as a learning tool simply led to games being perceived as entertainment and mainly a waste of time vis-à-vis education.

Introducing the concept slowly and using gaming in short bursts may help combat this mindset and assist in rolling out such media.

Designing a digital game as a learning tool

Whilst games designed purely for entertainment focus on the fun element, educational games are typically intended to address some kind of learning requirement. In order to achieve both aspects, it is imperative that goals within the game support learning objectives (Whitton, N. 2010). When a game is designed in such a way that progress requires engagement with the learning goals, it is much more likely to be successful. If a game is engaging but does not deliver the necessary knowledge, skills or information then it will not be educationally viable.

It is important that the participant is made aware of the game objectives and rules of the game either through gameplay or through an initial briefing. Gameplay should come naturally to the player if sufficient instruction is given as to what is expected in order to reach the goal of the game.

A suitable teaching tool should have the following elements to be well received and effective in its objectives:

- The game should be content rich and meet the requirements of curricula.
- It should have a suitable level of difficulty, preferably selectable to cater for individual learners.
- It should not be overly long or complex in order not to be perceived as a waste of time.
- The game must incorporate learner interaction and give the gamer a degree of control.
- The gameplay must be immersive and engaging, it should look like a game and feel like a game and not like a digital textbook.
- There should be a clear objective to the game where such objective motivates the user to complete the gameplay.
- It is imperative to map educational requirements to gaming outcomes in order to ensure that the game is educationally feasible and entertaining at the same time.
- Interaction with other users via the game is strongly recommended and highly beneficial from an educational perspective.

Game development for educational purposes requires striking a delicate balance between traditional schooling methods and informal education gained through off the shelf games.

Successful game design involves “teaching through repetition, failure and the accomplishment of goals” – (Malta Information Technology Agency – 2020)

If a game does not fully meet the desired learning outcomes, it does not mean that it is not successful but rather that the game should be looked at as part of a package encompassing elements of traditional education together with the gameplay.

A pilot or game example should be developed initially, and beta tested to gather feedback from stakeholders on their opinions and expectations. In this case both feedback of the educator as well as that of the learner are of paramount importance. This concept should focus on a cheap and rapid sample which delivers a minimum viable product i.e., a product with the expected features and no additional frills. Rapid prototyping is useful to develop a game it enables failures to be filtered out early before a considerable amount of money and resources are depleted on the product. This development concept also allows the possibility for tweaks and improvements during the lifecycle of the product. In the end, all that matters is for the developer to be able to deliver a value-added product. What constitutes value added? Essentially, it is what the customer wants and is willing to pay for, in this case it is not necessarily monetary payment but rather a tool that an educator is willing to use because it is perceived as useful and sustainable. On the other hand, one must not forget that in this case the final learner / user is also an end 'customer' and hence the delivered product must have properties that make it desirable to be played, fun and engaging.

Designing a game specification sheet

To have a clear idea of what the game is about, it is useful to write a concept specification. The latter lists down the core elements of the game and sets down an initial blueprint of the game. In case of a game for educational purposes, the learning objectives will be listed in this initial plan as well. The scope of the concept specification is to have a high level and clear overview on what the project will be about. An interesting example of such blueprint is shown below:

Learning objectives	Be able to communicate successfully with others. Be able to successfully work together and reach effective decisions. Be aware of the elements that make a group effective.
Genre	Multi-player strategy / negotiation game.
Brief description	Multi-player online game in which players have to adopt the role of a character and negotiate with other players regarding items to be included in a time capsule.
Plot	Four local dignitaries have to select six items to be included in a time capsule to represent the local town. Each character has different objectives and preferences.
Gaming activities	Communication with other players regarding personal needs. Making a decision as a group that all parties agree on. The number of items will be limited and each item will have a cost. The group will have to agree on the items and keep within budget.
Constraints	Game will take a maximum of 45 minutes to run. Game will be played on a single occasion. Game will be played in a computer lab.
Collaboration	Players will play in small groups online but in the same physical space.
Reflection	Players will undertake a reflective activity at the end of the game. Players can review the conversation that has taken place during the game.

Figure 1 – Concept Specification Example - (Whitton, N. 2010)

Conclusion

Designing a game for educational purposes can be a daunting but is not an unsurmountable task. It is important to start off with a clear mindset on what learning objectives one desires to achieve and then, subsequently, it is paramount to take into consideration the topic to be learned as well as the capabilities of the learner. The type of deployment of such product, be it in a formal educational setting or else in less formal models, also plays a role on the final iteration to be delivered. What matters most, however, is that a game does not lose its identity in the process and that it remains perceivable as a game with all the elements of entertainment, immersion and good playability. A successful educational tool is mentally engaging, rewarding and delivers on the promised educational outcome. Meeting such multifaceted objectives requires careful planning, experience and technical expertise. However, if all perquisites are in place, there is little doubt that the outcome would be a successful one.

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LANGUAGE DETECTIVE

Intellectual Output 1 – Document D

Conclusions

Language Detective – Interaction-Based Language Learning
Project: 2020-3-PL01-KA205-095063

Co-funded by the
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By Ryan Barbara

November 2021

Scope

This document is intended as a final conclusion report based on:

Document A – Formal & Informal Learning
Document B – Learning a Foreign Language
Document C – Digital games as an educational tool

The above documents were compiled with the aim of gathering supporting data to act as a guide in designing a digital game with the goal of teaching a foreign language. Before undertaking such task, it was envisaged that the following areas should be researched:

1) The type of learning model where the game will be deployed
2) The requirements and challenges in learning a foreign language
3) The requirements for implementing a game as an effective educational tool

Selecting an educational model

Document A highlighted the 3 types of educational models being formal, non-formal and informal. The aim of the Language Detective project is to build an educational tool which covers certain learning outcomes; however, it also aims to deliver a non-conventional fun way to do this, hence a non-formal learning approach shall be undertaken. A non-formal approach has been shown to be able to deliver tangible results without the shortcomings of informal methods where it would be significantly harder to ensure complete delivery of the educational material and also to assess any progress made. On the other hand, since the scope is also to develop an immersive game where the fun aspect is being given importance, a formal educational model would not be suitable either. Hence it is being recommended that a **non-Formal** approach be used.

Key elements for learning a foreign language to be integrated in the game

Based on Document B, the game should firstly evaluate the level of the learners and their backgrounds / preferences and the coursework to be delivered adjusted accordingly.

1) The program should offer short and intense sessions ideally less than an hour each.
2) The game should offer the opportunity for conversation, communications and asking questions.
3) A list of the 100 most commonly used words should be compiled in each language, depending on the learner level more or less words can be introduced.
4) The game should offer the learner the opportunity to use newly acquired words.
5) There should be the possibility of using tools such as subtitles to assist the student.

6) There should not be penalties for mistakes but instead allowing for repetition to get it right.
7) Introduce assessment points during the game, ideally the assessment should seem a seamless part of gameplay, however results would be recorded to assess progress.

Any one of the activities and puzzles shown below can be used as examples.

Listening	Speaking	Reading	Writing
draw a picture	name	preview and predict	create complete sentences
		find specific information	
answer questions		read fluently	list
listen and retell	ask and answer questions	identify main idea	compare
follow directions			
	evaluate		
distinguish between			

Figure 1 – (Adapted from Short, D., et. Al. 2016)

The table above was used in Document B and, in this conclusion, entries relevant to the Language Detective game have been identified.

Key Elements of game design features

Based on Document C, the following features should be integrated into the game in order to make it engaging and thus more likely to be used for its intended purpose.

1) Selectable difficulty levels
2) Keep the gameplay short (under an hour)
3) Give the player options and control
4) The game should feel like a game with emphasis on gameplay, delivered content should be an integral part of such gameplay.
5) Advancing in the game requires completing ‘challenges’ which are aligned with the educational outcome.
6) Offer interaction with other users.

Concluding Comments

A successful end product should manage to blend and balance the points discussed in Documents A, B and C in order to deliver suitable educational outcomes whilst at the same time maintain the level of fun, playability and engagement present in commercial games.

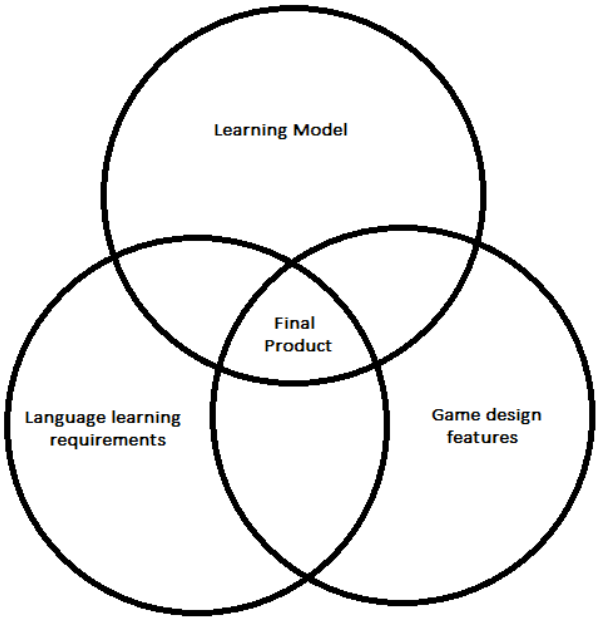

Figure 2 – Balancing the required features for a successful final product

The idea of rapid prototyping should be present when developing this game, where segments of gameplay or concepts can be tested and evaluated for effectiveness in order to ensure that the final desired outcome is successfully being achieved.

References

Document A – Formal & Informal Learning

Document B – Learning a foreign Language

Document C – Digital games as an educational tool

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LANGUAGE DETECTIVE

Intellectual Output I - Document E

Methodological-didactical principles

Language Detective – Interaction-Based Language Learning
Project: 2020-3-PL01-KA205-095063

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By Manuela Vogelgesang

November 2021

Methodological-didactical principles

Methodological-didactical principles are the foundations of lesson planning, as well as the characteristics of good foreign language teaching (formal learning) but they also deliver important impulses for language learning beyond the classroom, to develop suitable learning activities. The aim of this document is to give an overview as to what they are and how they can be followed as guidelines in the definition of learning objectives and learning outcomes, and the for the development of activities for a language learning app.

Focus on Competences

In the process of learning the learner acquires or enhances competences, which can be defined as skills and proficiencies, in order to solve exercises and problems (comparison with Funk et al. 2014, p.17). Learning activities should be rooted in a linguistic aim and should be constructed so that linguistic skills are acquired and are also visible and therefore checkable. Learning objectives for activities are formulated in “I can…” descriptors in terms of their expected achievements and outcomes (Goethe-Institut 2014, p.12). Learning objectives should be transparent and understandable for learners (Ende 2013, p.29). In informal learning situations, where there is no test or exam situation, the learner should have the opportunity to check for themselves whether they have reached their learning objectives.

Focus on Success Orientation

Success in the learning process means achieving ones learning objectives (Funk et al. 2014, p.18), which can motivate learners towards further language learning if the objectives are achievable for them, but can also demotivate and stress learners if their objectives are not achievable. Examples, models and aids, whether they stem from the language, the content, or the methods, increase the chances of success for learning activities in that they support the learner to cope with the activities (ibid.). For example, prior learning tasks which train particular aspects of the

language can provide a scaffold which enables learners to tackle more complex activities and exercises on a step-by-step basis. A suitable progression would comprise learning activities which guide the learner through receptive (listening and reading) to productive (speaking and writing) tasks and from closed to open practice activities, from single words to gap fills and complete sentences.

Focus on Action Orientation

The objective of this principle is that learners should be able to manage communicative tasks and are therefore prepared to communicate successfully in authentic situations. Suitable activities stimulate authentic communication situations, generally opportunities to speak or write (Goethe-Institut 2014, p.12), in which learners can use and widen their previously acquired language competences. Action-orientated learning activities prepare the learner to understand others and to make themselves appropriately understood in the foreign language (Funk, p.18).

Focus on Tasks

Task orientation is closely linked to action orientation in that learners should have the opportunity to work through exercises which initiate future dialogues and communicative situations outside the formal learning environment, and which have a connection to their lives (Wicke 2017, p.10). Vocabulary and knowledge of grammar are present to support communication and are not the central point of the exercise. The quality of the tasks will determine if and how the learning objectives are achieved (Funk et al. 2014, p.19).

Focus on Interaction

Activities should encourage learners to “be able to communicate and deal with each other in a social context” (Funk et al. 2014, p.19). Therefore exercises and activities need to be constructed in such a way as to enable co-operative learning in partner or group work. For example, that learners should be able to ask for information or

discuss something together, such as free time activities at the weekend. Activities which touch on interaction enable action orientation and therefore also the attempt to use the foreign language in communication with others.

Focus on Learner Activation

According to the principle of learner activation, learners are perceived as active participants, who actively engage in the learning process (Funk et al. 2014, p.21). An active and intensive processing of the learning objective and participation in the learning experience leads to the achievement of the learning aims and encourages foreign language learners' motivation.

Personalisation

This principle emphasises the personal connection of the learner to the learning objective. For example, the world in which they live, their age, interests, dreams and desires (Funk et al. 2014, p.20). With personalisation the learner has many opportunities to incorporate their own experiences and environment and express themselves in a context which is meaningful for them, rather than in a fictional context with unknown characters in learning resources.

Focus on Learners

According to this principle, all the learning activities are directed towards the individuality of the learner themselves. The individual interests, prior learning, learning needs and socio-economic worlds of the learner are taken into account through the use of diverse materials, presentations and means of expression (Ende et al. 2013, p.29) and their motivation for learning is influenced positively (Goethe-Institut 2014, p.12).

Intercultural Orientation

Communication in the foreign language always takes place in social contexts in which participants are influenced culturally. The learners should experience cultural characteristics through communicative actions in the foreign language in suitable learning activities, in which similarities and differences with their own methods of communication can be identified (Goethe-Institut 2014, p.13). In this way important strategies can be developed to prepare learners for authentic communicative situations in foreign language contexts (Ende 2013, p. 30)

Multilingual orientation

According to this principle, language skills and language learning experiences which the learner has already undertaken are used for successful further language learning. For example, learners can understand specific linguistic structures and vocabulary more quickly due to previously acquired meta-linguistic skills and language comparisons (Goethe Institute 2014, p.13).

Learner Autonomy

According to this principle, learning is understood to be a conscious and reflexive process which learners can deliberately design through learning strategies and reflecting on their own learning process. Learners take responsibility for their own learning and steer their learning process towards their goals in an increasingly independent manner (Ballweg et al. 2013, p.66).

Conclusions:

The learning activities for the app should:

- be developed from learning objectives
- offer exercises in suitable levels of progression
- contain levelled support
- fit in to the lived experience of the learner

- stimulate authentic communication situations
- enable interaction and communication with others
- present information in various ways (visual, audio etc.)
- present diverse learning activities
- contain the possibility of choice
- enable intercultural experiences
- allow for varying levels of prior learning
- encourage reflection of learning experiences
- foster learner autonomy

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Cooperative Learning

The concept and principles of cooperative learning are drawn from instructional contexts, but they also deliver important stimuli to develop suitable learning activities for extra-instructional learning contexts. The aim of this document is to give an overview of what they are and how they can be followed as guidelines in the definition of learning objectives and learning outcome and the development of activities for a language learning app.

The Definition and Principles of Cooperative Learning

The concept of cooperative learning describes forms of learning in which pupils support each other in their learning and reach results together (Brägger 2017, page 6), in that productive and efficient co-working is facilitated. The foundation of cooperative learning is characterised by the three-step instructional process of 'think-pair-share'. For Brüning and Saum this method is "the heart of cooperative learning and simultaneously a universal structure for lessons." (Brüning/Saum 2017, page 28).

Cooperative learning is thus a teaching concept which emphasises the importance of individual work. According to its premise of "no cooperation without prior individual work" (Brüning/Saum 2017, page 16), all learners succeed in cognitive activation through suitable tasks. In line with this, all learners are supported and prepared for the subsequent cooperative phase of the exchange in cooperative social forms.

As well as this basic principle there are five conditions of group work which characterise the concept of cooperative learning, and which are necessary for successful cooperative learning: positive interdependence, individual responsibility, social competences, work in small groups, and reflection and feedback (Brüning/Saum 2017, page 132). These are set out in the following diagram from Bräger (2017, page 6):

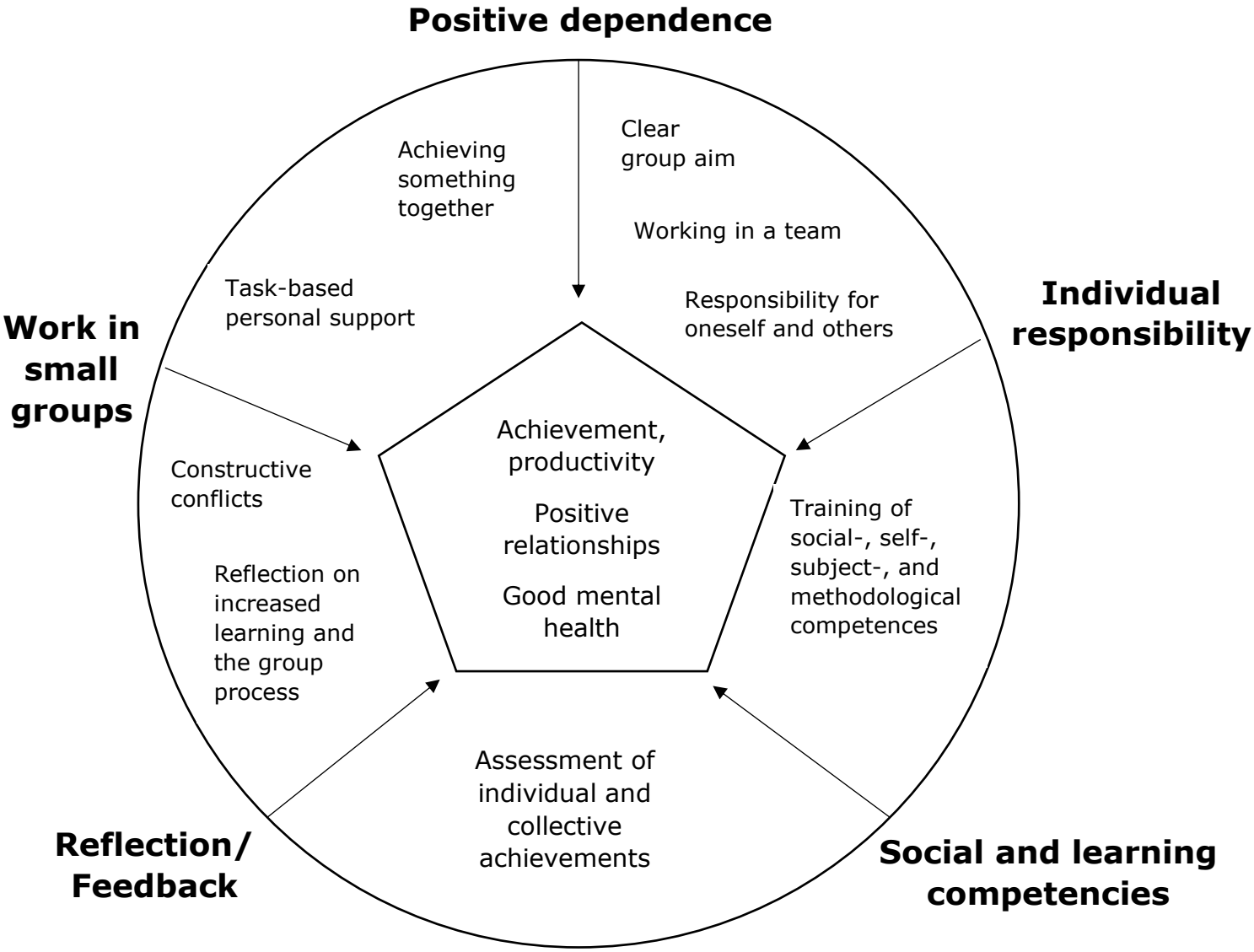

Image 1: Founding principles of cooperative learning (Bräger 2017, page 6)

Positive interdependence occurs when every member of the group takes responsibility for the learning process and each individual facilitates the successful progress of the group work through effective actions. Only when everyone plays their part can the group experience successful learning (Brüning/Saum 2017, page 133). Transparent and achievable learning objectives of the group, which are known to all learners, support this process. Tightly bound up with this is individual responsibility which entails every member of the group being able to succeed and

use the target skills and proficiencies as set out in the Learning Objective (ibid., page 150). This condition is achieved when all members of the group are able to present the whole group's findings, not just the part of the task allotted to them (ibid., page 146).

In order to learn successfully in cooperation, specific social skills of learners need to be developed. Thus, social competences are both "a condition and an aim of cooperative learning" (ibid., page 133). Developing learners should learn, amongst other things, to deal with each other respectfully, to actively listen to each other, and to support each other, as well as to communicate constructively with each other (ibid., page 134).

These learning objectives can be achieved most effectively when learning takes place in small groups, ideally consisting of four learners, in order to enable high levels of involvement and collaboration, as well as more intensive communication through meaningful learner to learner interaction (ibid., page 133).

Regular reflection and feedback phases around the process, the behaviour, the methods and results of the joint collaboration (not just at the end of the cooperative learning activity) enable sustainable learning and the continual improvement and widening of interdisciplinary competences (ibid., page 133 & 135).

The advantages of cooperative learning in foreign-language learning

The aforementioned principles of cooperative learning illustrate the fact that in cooperative learning arrangements, varied subject skills and social, communicative and methodological competencies are developed. For foreign language learners the focus is on the communicative competencies of the learner in that they are able "to produce language creatively and intelligently" (Roche 2010, page 1). Appropriate and successful communication is a meaningful social competence, which, above all, can be taught to language learners. Exchanges with group members in various phases of the cooperative learning process leads to authentic and meaningful reasons to speak, in that learners exchange experiences and the results of their work, ask each other questions and answer them, and also talk about their learning experiences in the reflection phase of the process. This

exchange with learning partners allows for "communicative penetration" (Brüning/Saum 2017, page 15) and thus the development of communicative competence, for example by discussing their own and others' experiences, communalities and divergences, the laying down of priorities or the drawing of conclusions, whereby new structures of knowledge are built (Brüning/Saum 2017, page 30). Linguistic and content learning are thus interlinked. Cooperative learning proposals should be set out to be action-oriented and task-based, and thus they bind together various linguistic skills, whereby communication between the group members is at the core.

Brüning and Saum (2017, pages 86-89) point out that cooperative learning has four major potentials with regard to individualisation:

1. That cooperative learning creates a free space for individual learning, as by automatising the triad (of think-pair-share) for the teacher, an open space is created in which individual learners can be supported.

2. The individual pace of learning can be taken into account.

3. The lack of uniformity in the learning group as seen as an opportunity: through prior learning weaker learners can profit from their co-learners in that their co-learners are closer to their problems and can support them in reaching the next level of competence. This demonstrates that cooperative learning allows learners to reach their own individual level.

4. Differentiation by level of competence is possible. For example, the complexity of the activity can vary.

Conclusions:

The learning activities of the Language Detective app should:

- contain transparent learning objectives of a social, methodological, and technical nature

- connect individual and group work with another meaningfully

- enable meaningful communication

- contain exercises which are cognitively stimulating
- be challenging and encourage cooperation in successful problem solving
- be undertaken by (at most) four in a group
- stimulate reflection of the learning process
- encourage the development of subject-based and cross-curricular competences.

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