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INGLES

DIGITAL STORIES AS A RESOURCE FOR FOREIGN LANGUAGE LEARNING

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Trabajo Fin de Grado

DIGITAL STORIES AS A RESOURCE FOR FOREIGN LANGUAGE LEARNING

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Digital stories as a resource for foreign language learning

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Preámbulo

El Real Decreto 1393/2007, de 29 de octubre, modificado por el Real Decreto 861/2010, establece en el Capítulo III, dedicado a las enseñanzas oficiales de Grado, que "estas enseñanzas concluirán con la elaboración y defensa de un Trabajo Fin de Grado […] El Trabajo Fin de Grado tendrá entre 6 y 30 créditos, deberá realizarse en la fase final del plan de estudios y estar orientado a la evaluación de competencias asociadas al título".

El Grado en Maestro en Educación Infantil por la Universidad Pública de Navarra tiene una extensión de 12 ECTS, según la memoria del título verificada por la ANECA. El título está regido por la *Orden ECI/3854/2007, de 27 de diciembre, por la que se establecen los requisitos para la verificación de los títulos universitarios oficiales que habiliten para el ejercicio de la profesión de Maestro en Educación Infantil*; con la aplicación, con carácter subsidiario, del reglamento de Trabajos Fin de Grado, aprobado por el Consejo de Gobierno de la Universidad el 12 de marzo de 2013.

Todos los planes de estudios de Maestro en Educación Infantil se estructuran, según la Orden ECI/3854/2007, en tres grandes módulos: uno, *de formación básica*, donde se desarrollan los contenidos socio-psico-pedagógicos; otro, *didáctico y disciplinar*, que recoge los contenidos de las disciplinares y su didáctica; y, por último, *Practicum*, donde se describen las competencias que tendrán que adquirir los estudiantes del Grado en las prácticas escolares. En este último módulo, se enmarca el Trabajo Fin de Grado, que debe reflejar la formación adquirida a lo largo de todas las enseñanzas. Finalmente, dado que la Orden ECI/3854/2007 no concreta la distribución de los 240 ECTS necesarios para la obtención del Grado, las universidades tienen la facultad de determinar un número de créditos, estableciendo, en general, asignaturas de carácter optativo.

Así, en cumplimiento de la Orden ECI/3854/2007, es requisito necesario que en el Trabajo Fin de Grado el estudiante demuestre competencias relativas a los módulos de formación básica, didáctico-disciplinar y practicum, exigidas para todos los títulos universitarios oficiales que habiliten para el ejercicio de la profesión de Maestro en Educación Infantil.

En este trabajo, el módulo *de formación básica* permite enmarcar nuestro proyecto dentro del currículum de educación infantil, al dedicar un apartado al análisis del mismo, mismo tiempo que determina. Del mismo modo que hemos especificado de qué manera se ponen en práctica con el desarrollo de éste trabajo, los contenidos estudiados a lo largo del grado.

El módulo *didáctico y disciplinar* se desarrolla a lo largo de todo el trabajo ya que hemos utilizado tanto lo aprendido en las asignaturas generales de grado, como lo aprendido en nuestro último año de mención en lengua extranjera inglés para el desarrollo de un proyecto innovador.

Asimismo, el módulo *practicum* se pone en marcha con el diseño e implementación de un proyecto. Para ello hemos puesto en práctica tanto los conocimientos teóricos como lo aprendido durante nuestra experiencia de prácticas escolares a lo largo del grado. Todo ello nos ha servido para adaptar las actividades tanto al contexto del centro como a las características del alumnado.

Por otro lado, la Orden ECI/3854/2007 establece que al finalizar el Grado, los estudiantes deben haber adquirido el nivel C1 en lengua castellana. Por ello, para demostrar esta competencia lingüística, se redactan también en esta lengua los apartados "Antecedentes, objetivos y cuestiones" y "Conclusiones y cuestiones abiertas", así como el preceptivo resumen que aparece en el siguiente apartado.

Resumen

In the 21st century new technologies are the main communication media and the school should take advantage of the possibilities that it provides, not only to improve the learning process but also to enhance students to enjoy the 21st century facilities. Taking as well into account the importance of foreign languages in nowadays globalized society we have decided to focus our work on the benefits of using new technologies for foreign language learning in nursery education.

Although, despite the modernization in educational centers there are still schools that do not have enough technological resources to develop some activities. That's one of the reasons why we have decided to use digital stories as the main tool for our design, since it just implies the use of the most basic technological tools.

A part from providing information about this tool and how to use it, our work also includes the design and implementation of a project, in which we measure and compare the improvements of two groups of students in the acquisition of a language, Spanish in one group and Irish in the other.

Abstract

En el siglo XXI, las nuevas tecnologías suponen el principal medio de comunicación, los centros educativos deben adaptarse al progreso y aprovechar las ventajas que las TIC proporcionan, ya que no solo mejoran el proceso de aprendizaje sino que también preparan a nuestros alumnos para la vida en sociedad.

A pesar de la modernización en las escuelas todavía hay centros que no cuentan con suficientes recursos tecnológicos para desarrollar algunas actividades. Éste es uno de los motivos por los que hemos decidido escoger los relatos digitales como principal instrumento para nuestro diseño, ya que solo requiere el uso de los utensilios tecnológicos más básicos.

Nuestro trabajo, aparte de proporcionar información acerca de éste instrumento y el uso del mismo, también incluye el diseño y la implementación de un proyecto, con el que mediremos y compararemos los progresos de dos grupos de niños en la adquisición de lenguas extranjeras. En un grupo será el español y en otro el irlandés.

Índice

Introducción

Si analizamos la educación desde un punto de vista global, se podría decir que uno de sus fines principales es el de prepararnos para la vida en sociedad. En las últimas décadas, nuestra sociedad ha experimentado grandes cambios, en gran parte por la incorporación de las nuevas tecnologías a nuestro día a día. Es un hecho que tanto los ordenadores como los smatphones y otros recursos tecnológicos forman ya parte de nuestra cultura, por lo que el ámbito de la educación también debe adaptarse a este fenómeno, preparando al alumnado para el correcto uso de los mismos. Por otro lado, también debemos tener en cuenta los posibles beneficios del uso de las nuevas tecnologías en el aula, ya no solo como un nuevo material, sino como modelo de enseñanza.

Tras analizar las posibilidades que las nuevas tecnologías nos brindan de cara a la mejora de los procesos educativos, hemos escogido centrarnos en los relatos digitales, en este caso enfocados a la enseñanza de lenguas extranjeras en educación infantil. Una de las razones de nuestra elección es que los relatos digitales utilizan textos y la literatura aporta una enorme variedad de posibilidades pedagógicas de por sí, por los que nos parece interesante explorar en qué medida el uso de recursos digitales puede facilitar tanto el trabajo del docente como el aprendizaje del alumno.

En cuanto al desarrollo del trabajo, éste se organiza en torno a diversas secciones en las que abordamos el tema tanto a nivel práctico como teórico. Comenzaremos con el apartado de *Antecedentes, objetivos y cuestiones*, donde justificaremos la elección del tema y señalaremos tanto su relación con los contenidos del currículo oficial de educación infantil, como las competencias adquiridas en el grado de maestro educación infantil que pretendemos demostrar en este estudio.

Pasando a la sección *Theoretical background* nos centraremos en analizar la evolución de los recursos digitales hasta llegar a la situación actual, basándonos para ellos en investigaciones y proyectos, que nos ayudarán a definir las ventajas e inconvenientes del uso de los relatos digitales como recurso pedagógico en educación infantil.

En el siguiente apartado entramos en la sección más práctica del proyecto, *Materials and Methods* en la que expondremos el tema de estudio, acompañado de una unidad didáctica que nos ayudará a recabar datos mediante su puesta en práctica. Además, teniendo en cuenta que una de las principales barreras para el desarrollo de proyectos en los que se usan las nuevas tecnologías suele ser el factor económico o de falta de recursos, la unidad será puesta en práctica en un centro con escasos recursos tecnológicos, evaluando así su viabilidad. A continuación vendrán los apartados *Results and discussion,* y *Conclusions* en los que expondremos la experiencia y nuestras reflexiones y conclusiones sobre la misma.

1. ANTECEDENTES, OBJETIVOS Y CUESTIONES

Como ya hemos señalado anteriormente, la sociedad avanza a una velocidad vertiginosa, en gran parte por el continuo desarrollo de las nuevas tecnologías. Los nuevos recursos con los que contamos hoy en día han dado lugar a una comunidad global, en la que la comunicación ya no tiene barreras, esto ha beneficiado en muchos aspectos a las diferentes áreas de la educación, especialmente a la enseñanza de segundas lenguas. Nosotros, como profesionales de la educación, debemos adaptar nuestros modelos de enseñanza para proporcionar a nuestro alumnado una educación que les permita ajustarse y responder adecuadamente con un nivel de competencia suficiente a las necesidades de la sociedad en la que vivimos.

 A lo largo de los años las metodologías basadas en el aprendizaje memorístico de gramática y vocabulario han sido líderes en lo que concierne a la enseñanza de segundas lenguas y lenguas extranjeras. Este tipo de enseñanzas han demostrado ser ineficaces para el desarrollo oral de la lengua, de modo que han experimentado grandes cambios ya que el objetivo actual ya no es conocer la estructura de la lengua, sino ser capaces de utilizarla con fines comunicativos, por lo que la expresión y la comprensión comunicativa cobran mucho más valor. En los últimos años la investigación en adquisición de lenguas ha demostrado que los aspectos comunicativos de la lengua deben cobrar más relevancia, tanto en los contenidos de los grados de formación de maestro, que mostraremos a continuación, como en los contenidos del currículum de educación infantil, que trataremos en el siguiente apartado.

Esta evolución y la necesidad de una competencia comunicativa se la debemos en gran parte al hecho de que el mundo es cada vez más global y más accesible, sobre todo, a través de las nuevas tecnologías de la información (TIC) que posibilitan relaciones comunicativas nuevas y más amplias con audiencias del resto del mundo. Además, las grabadoras de voz, los archivos de audio, el poder conversar con nativos que se encuentran a miles de kilómetros, al igual que los recursos que podemos encontrar en la web; como películas y cuentos en versión original o aplicaciones orientadas al aprendizaje de lenguas, suponen herramientas de gran utilidad, que posibilitan el aprendizaje autónomo tanto en grupo como a nivel individual. Las nuevas

tecnologías nos brindan la posibilidad de mejorar la calidad y la eficacia de la enseñanza de idiomas con herramientas que posibilitan el trabajo transversal en todas las áreas, lo que da lugar a una educación global, coherente e integrada.

Es por esto que hemos decidido trabajar el aprendizaje de lenguas extranjeras a través de recursos tecnológicos, con el fin de proporcionar un aprendizaje autónomo a través de actividades lúdicas e interactivas, que nos ayudan a mantener un alto grado de motivación, al centrar el aprendizaje en torno a los intereses de los alumnos.

A lo largo de nuestro grado en educación infantil hemos explorado el funcionamiento de algunos recursos tecnológicos, como la PDI, el uso de blogs en el aula, o ciertos programas de diseño de actividades interactivas. A la hora de centrarnos en un recurso tecnológico para este trabajo hemos decidido centrarnos en algo diferente, los relatos digitales, con el fin de innovar y ampliar nuestros conocimientos en el área.

Además los relatos digitales permiten introducir la literatura en el aula, lo cual siempre ha supuesto un recurso muy eficaz, tanto para la adquisición de la propia lengua como para la adquisición de lenguas extranjeras, por lo que creemos que su fusión con las nuevas tecnologías puede resultar muy beneficiosa para el aprendizaje dinámico e interactivo de la lengua extranjera. Por otro lado el uso de las nuevas tecnologías en el aula posibilita el diseño de actividades interactivas, con las que los alumnos podrán aprender de manera más autónoma, y el docente podrá centrarse en otras cuestiones, como por ejemplo la identificación de las necesidades y capacidades de los alumnos, que nos permitirá ajustar el diseño de las sesiones a las características tanto generales como individuales del grupo., lo que contribuirá al correcto desarrollo cognitivo, afectivo y social del alumnado.

Está claro que para sacarle el máximo partido al uso de los relatos digitales lo ideal sería contar con un ordenador, o Tablet por niño, o contar con una pizarra digital en el aula, pero somos conscientes de la situación actual de muchos colegios, sobre todo a nivel económico, y debemos reconocer que a menudo los gadgets y útiles tecnológicos son caros y delicados, por lo que muchos maestros o colegios se muestran reacios a la inversión o a ponerlos en manos

de niños, por lo general poco cuidadosos. Otra de las razones por las que hemos escogido los relatos digitales, es que, aunque los resultados no vayan a ser los mismos que en las condiciones ideales, con un simple ordenador por aula consideramos que se podrían desarrollar actividades muy interesantes, y trataremos de probarlo adaptando la unidad a una situación real con escasez de recursos tecnológicos.

1.1. Vinculación con los contenidos del Grado de educación infantil

De acuerdo con la guía de la titulación, éste trabajo tiene como objetivo la evaluación global de las competencias trabajadas a lo largo del grado, por lo tanto dedicaremos este apartado a analizar las mismas y determinar cuáles ponemos en práctica con el desarrollo de éste trabajo.

El diseño de nuestro trabajo es de carácter empírico, un modelo de trabajo que permite la puesta en práctica de diferentes competencias adquiridas a lo largo del grado, tanto a nivel teórico como práctico, que se organizan en competencias básicas, generales, transversales y específicas.

Comenzaremos analizando las competencias básicas dadas por la ANECA. Como ya hemos dicho nuestro trabajo engloba tanto aspectos teóricos que enmarcan el tema de estudio, como una propuesta didáctica, y la adaptación de la misma a una situación real. Esto supone trabajar la competencia básica CB2, "Que los estudiantes sepan aplicar sus conocimientos a su trabajo o vocación de una forma profesional y posean las competencias que suelen demostrarse por medio de la elaboración y defensa de argumentos y la resolución de problemas dentro de su área de estudio" ya que el diseño de las actividades que integran la unidad implica la puesta en práctica de conocimientos de carácter profesional, al mismo tiempo que la adaptación de la unidad para su puesta en práctica implica tanto la prevención como la resolución de problemas.

Por otro lado, si nos centramos en el tema de estudio del trabajo, el uso de los relatos digitales para el aprendizaje de segundas lenguas, nos encontramos con dos temas de vanguardia en la educación, el uso de las nuevas tecnologías en el aula y la enseñanza de lenguas extranjeras, por lo que estaríamos trabajando la competencia CB1, ya que incluimos "algunos

aspectos que implican conocimientos procedentes de la vanguardia de su campo de estudio".

Por último dentro de las competencias básicas, ponemos en práctica la competencia CB4, que permite que "que los estudiantes puedan transmitir información, ideas, problemas y soluciones a un público tanto especializado como no especializado" ya que consideramos las nuevas tecnologías y en especial los relatos digitales un recurso sencillo y útil para la enseñanza de cualquier contenido, y que está al alcance de cualquier proyecto educativo. Por éste motivo pretendemos que sea asequible para cualquier tipo de público, facilitando así el uso de las nuevas tecnologías con fines educativos. Y las competencias CB3 y CB4 puesto que en este trabajo vamos a "reunir e interpretar datos relevantes" respecto al uso que se ha hecho de los relatos digitales en nuestro campo y "vamos a emitir juicios que incluyen un reflexión sobre su uso" al presentar nuestra propuesta de unidad didáctica, y además demostraremos que se han adquirido "las habilidades de aprendizaje necesarias para emprender estudio posteriores con un alto grado de autonomía" al ser capaces de analizar propuestas anteriores, relacionarlas con nuestra propuesta didáctica y emitir conclusiones razonadas respecto al uso de los relatos digitales en educación infantil.

En cuanto a las competencias generales dadas por las Orden ECI, son la CG1, CG2, CG3, CG6, CG7, CG11 Y CG12 las más relevantes de cara a nuestro trabajo. Estas competencias guardan grandes similitudes con los contenidos específicos, CE1, CE2, CE3, CE5, CE7 y CE8 y también tienen relación con los contenidos CE10 y CE12 por lo que en algunos casos las trataremos de manera conjunta.

Las competencias CG1, CE1, y CE12, se ponen en práctica a la hora de diseñar una unidad didáctica ya que supone "organizar de forma activa los procesos de enseñanza y de aprendizaje de los contenidos propios de la Educación Infantil desde una perspectiva de desarrollo de competencias" CE12.

En el proceso de diseño de las actividades siempre se han tenido presentes, tanto los contenidos como los objetivos del currículo oficial de educación infantil, cuya vinculación con nuestro trabajo se concreta en el siguiente

apartado (Vinculación con los contenidos del currículo de educación infantil), concretando así dónde y cómo se trabaja cada aspecto del currículo, mientras que en el apartado de *Materials and Methods* especificaremos los criterios de evaluación y la metodología a seguir, probando así "conocer los objetivos, contenidos curriculares y criterios de evaluación de la Educación Infantil" CG1 y "conocer los objetivos, los contenidos curriculares, la organización, la metodología, y los criterios de evaluación de la Educación Infantil" CE1. Además con el diseño de la misma acorde con las características cognitivas de la etapa demostramos "conocer los fundamentos de la atención temprana, el funcionamiento de los procesos psicológicos básicos, las claves del aprendizaje, la construcción de la personalidad" CE8.

Las siguientes competencias, CG7 y CE7, se centran en "conocer las implicaciones educativas de las tecnologías de la información y la comunicación" en la primera infancia, algo que está muy presente en nuestro trabajo. Las posibilidades que el uso de las nuevas tecnologías brinda al ámbito de la educación son infinitas, en nuestro caso hemos decidido centrarnos en los relatos digitales, una nueva manera de trabajar la literatura, que también nos permite trabajar otras áreas del currículo. A lo largo del trabajo pretendemos explorar su funcionamiento, las diferentes maneras de llevarlo a la práctica, así como las implicaciones de su uso en el aula. Con todo esto nuestra unidad supone un modelo de mejora de la calidad que además considera las limitaciones que los escasos recursos económicos suponen para muchos centros, trabajando así la G12, al "comprender la función, las posibilidades y los límites de la educación en la sociedad actual y las competencias fundamentales que afectan a los colegios de educación infantil y a sus profesionales. Conocer modelos de mejora de la calidad con aplicación a los centros educativos"

Además por medio de los relatos digitales se integran las diferentes dimensiones de los niños, que aunque hablemos de ellas de forma separada se trabajan de manera integrada. A lo largo de la etapa infantil el niño va ampliando su dimensión emocional a medida que va conociendo el mundo, estableciendo nuevas relaciones afectivas, familia, amigos…con el uso de las

nuevas tecnologías ampliamos el radio mucho más ya que puede comunicarse, con un público mucho más amplio, en este caso lo haríamos a través de los relatos digitales que aparte de ser un elemento motivador contribuye al conocimiento de sí mismo y la autonomía personal. Por otro lado, éste tipo de recursos promueven la investigación, ayudando al alumno adquirir una imagen ajustada de la sociedad en la que vive, mientras que la escucha de relatos ajenos les aportan diferentes puntos de vista procedentes de otras sociedades y culturas, desarrollando al máximo su dimensión social. En cuanto a la dimensión física, la manera más eficaz para el conocimiento del propio cuerpo es a través del movimiento, y aunque en un principio parece algo ajeno a la literatura, pretendemos integrar esta área a través de metodologías como TPR, muy útil para la enseñanza de segundas lenguas en edades tempranas. Finalmente en cuanto al área cognitiva, el uso de relatos digitales influye en la posibilidad de una presentación multicanal en el que el niño adquiere el aprendizaje por diferentes vías, resultando así mucho más efectivo.

Todo esto hace que sea una unidad de carácter global, que integra competencias propias de las diferentes áreas, contribuyendo así al desarrollo del niño en todos los aspectos, trabajando la CE2 y la CG2, "Promover los aprendizajes en la primera infancia desde una perspectiva globalizadora e integradora de las dimensiones cognitiva, emocional, psicomotora y volitiva".

A su vez esto supone poner en práctica las competencias CG11, CE5, que se centran en "reflexionar sobre las prácticas de aula para innovar y mejorar la labor docente. Adquirir hábitos y destrezas para el aprendizaje autónomo y cooperativo". Consideramos los relatos digitales un recurso de gran utilidad ya que aporta cierto grado de autonomía al alumnado, disponiendo así el docente de tiempo para observar y ajustar las sesiones a las particularidades de cada alumno. El uso de éstos recursos permite atender a las singularidades de los niños al permitir contenido multimedia a la vez que nos permite demostrar nuestra competencia a la hora de "diseñar y regular espacios de aprendizaje multiculturales y multilingües, que atiendan a las singulares necesidades educativas de los estudiantes" CE3 Y CG3. Apoyando la teoría de las inteligencias múltiples de Gardner (1983), consideramos necesario el integrar cada una de las ocho inteligencias dentro de la unidad, aportando así

diferentes puntos de vista sobre un mismo aprendizaje para asegurar el aprendizaje significativo de uno u otro modo.

Por otro lado, para los estudiantes el uso de las nuevas tecnologías supone un punto extra de motivación, ya que transforma el aprendizaje en un proceso de juego, dinámico e interactivo, al mismo tiempo que les brinda la posibilidad de aprender de manera autónoma, poniendo en práctica la CE10, "fomentar la cooperación, la convivencia, la motivación y el deseo de aprender".

La elección de los relatos digitales para el aprendizaje de lenguas extranjeras como tema principal de nuestro trabajo, supone poner en práctica las competencias CE6 y CG6, ya que implica "adquirir técnicas que estimulen el desarrollo del lenguaje, expresarse oralmente y por escrito, y dominar diferentes técnicas de expresión" ya que aunque a lo largo del grado hayamos trabajado con diversos recursos tecnológicos, los relatos digitales suponen una estrategia, tanto de expresión, como de acercamiento a la literatura que nos sirve en éste caso para iniciar a los niños en el aprendizaje de una lengua extranjera, para lo que se requiere "conocer la evolución del lenguaje en la primera infancia y ser capaces de abordar con eficacia situaciones de aprendizaje de lenguas", competencia G6.

Para finalizar, en cuanto a las competencias transversales, comunes a todos los grados de la UPNA, ponemos es práctica tanto la competencia CT1, "demostrar una competencia lingüística en inglés, francés, alemán o italiano equivalente a un nivel B1", como la CT2 "demostrar una competencia lingüística en castellano y, en su caso, en euskera equivalentes a un nivel C1. En nuestro caso aparte de las actividades formativas básicas correspondientes a la competencia lingüística en idioma extranjero, también hemos cursado la mención en éste área, por lo tanto, y con el fin de demostrar nuestra capacidad de comunicación y transmisión de conocimientos en la lengua extranjera, redactamos los bloques centrales del trabajo (*Theoretical Framework* y *Materials and Methods*) en inglés, mientras que al redactar los apartados anteriores y las conclusiones en castellano, demostramos nuestra competencia lingüística en esta lengua.

1.2. Vinculación con el currículum de Educación Infantil

Dedicamos éste apartado al análisis del currículo de educación infantil, con el objetivo de enmarcar las líneas generales de nuestro trabajo, vinculando los diferentes aspectos que desarrollamos en el proyecto con las diferentes áreas de currículo, ya sea directa o indirectamente. Para ello recurrimos al Decreto Foral 23/2007, de 19 de marzo, que establece las enseñanzas mínimas correspondientes al segundo ciclo de educación infantil en la comunidad foral de Navarra. Para determinar estos mínimos el currículo establece ciertos principios, algunos de ellos estrechamente relacionados con las líneas de nuestro trabajo, comenzando por la visión del proceso de enseñanza que "debe ser activo-creativo para que el alumnado adquiera las habilidades necesarias para aprender de forma autónoma, utilizando las fuentes tradicionales de información, las Nuevas Tecnologías y los demás recursos de la biblioteca escolar". En nuestra propuesta pretendemos transmitir la lengua extranjera a través de los relatos digitales, que fusionan literatura y tecnología, una fórmula que aporta al niño mucho más protagonismo en el proceso de aprendizaje, ya que es él mismo quien dirige su aprendizaje en función de sus necesidades, fomentando su interés y motivación.

Consideramos por tanto la elección de los relatos digitales como vehículo de aprendizaje muy apropiado ya que permite "el aprendizaje de las competencias lingüísticas en todas las áreas de las diversas etapas", así como "la coordinación de las enseñanzas lingüísticas del currículo a través del tratamiento integrado de las lenguas" ya que es un recurso globalizador, que no se centra en un área en concreto, sino que a través del mismo se puede trabajar cualquier contenido de manera conjunta.

Si seguimos con los rasgos generales del currículo, consideramos necesario destacar los siguientes puntos:

Artículo 4. Objetivos de la Educación Infantil

- Desarrollo de habilidades comunicativas en diferentes lenguajes y formas de expresión.

Artículo 6. Contenidos educativos y currículo

- En el segundo ciclo de la Educación Infantil se iniciará al alumnado en el aprendizaje de la lengua extranjera. Asimismo, se fomentará una

primera aproximación a la lectura y a la escritura, así como experiencias de iniciación en habilidades numéricas básicas, en las tecnologías de la información y la comunicación y en la expresión visual y musical

Estos artículos integran a la perfección nuestra intención de proporcionar a los alumnos nuevos medios de comunicación, por un lado una nueva lengua y por otro recursos tecnológicos. Por lo tanto nuestra propuesta cumpliría con los propósitos del currículo de iniciar al niño en una segunda lengua, en el uso de las TIC, y en la lectura y la escritura.

Una vez analizados los rasgos más generales del currículum pasamos a las diferentes áreas, dentro de las cuales queremos resaltar el área de Lenguajes, comunicación y representación, por ser la que guarda más relación con nuestro proyecto. Éste área se organiza en torno a los diferentes lenguajes, verbal, audiovisual, artístico y corporal y aunque los lenguajes corporal y artístico se pueden trabajar a través de los relatos digitales, no son el principal objetivo de nuestro trabajo, por lo que en el caso de aparecer algún contenido específico de estos bloques a lo largo de las sesiones de la unidad, se especificarán dentro del apartado *Materials and Methods*

En general el área de Lenguajes se centra en las diversas formas de recepción, emisión y representación de mensajes, y abarca diferentes formas de comunicación y representación, englobando tanto la comunicación en lenguas extranjeras como el uso de diferentes recursos tecnológicos como medio de comunicación.

Comenzaremos analizando los objetivos del área, con los que encontramos una vinculación directa ya que vamos a "utilizar la lengua como principal instrumento de aprendizaje, de representación, de comunicación y disfrute", puesto que mediante el uso de la misma los alumnos van a trabajar muchos otros contenidos aparte de la adquisición de una lengua extranjera. También haremos uso de la lengua extranjera para la comunicación en el aula, por lo que consideramos que los siguientes objetivos del área tienen especial vinculación con nuestro trabajo:

- Utilizar la lengua como instrumento de aprendizaje, de representación, de comunicación y disfrute, de expresión de ideas y sentimientos y valorando la lengua oral como un medio de relación con los demás y de regulación de la convivencia.

- Iniciarse en el uso oral de otras lenguas del currículo para comunicarse en actividades dentro del aula, y mostrar interés y disfrute al participar en estos intercambios comunicativos.

Si pasamos a analizar los contenidos, éstos se organizan en cuatro bloques:

Bloque 1: Lenguaje verbal.

Bloque 2: Lenguaje audiovisual y tecnologías de la información y la comunicación.

Bloque 3: Lenguaje artístico.

Bloque 4: Lenguaje corporal.

De éstos cuatro bloques es obvio que los más relevantes para nuestro trabajo son los dos primeros, por lo que comenzaremos analizando el bloque de lenguaje verbal, que se organiza en torno a tres apartados.

El primero, (Escuchar, hablar y conversar) sería el que más relación guarda con el objeto de estudio, ya que se centra en la comunicación oral. A la hora de diseñar las actividades siempre hemos tenido presente que todos los materiales estén estrechamente vinculados con el entorno más cercano del niño, de modo que le resulte más sencillo comprender y predecir los acontecimientos por lo que creemos que el siguiente contenido está presente en la unidad:

- Comprensión de la idea global de textos orales en otras lenguas del currículo, en situaciones habituales del aula y cuando se habla de temas conocidos y predecibles

Por otro lado para el correcto desarrollo de las sesiones, es imprescindible contar con un clima de aceptación ante la introducción de la nueva lengua, además de que los niños comprendan y respeten las normas básicas de comportamiento, respetando tanto a sus compañeros como el material con el

que vamos a trabajar. Con esto demostramos trabajar las siguientes competencias:

- Utilización adecuada de las normas que rigen el intercambio lingüístico, respetando el turno de palabra, escuchando con atención y respeto:
- Actitud positiva hacia las lenguas.
- Interés por participar en interacciones orales en otras lenguas del currículo, en rutinas y situaciones habituales de comunicación.

En cuanto al segundo, aproximación al lenguaje escrito, si tenemos en cuenta la etapa a la que está enfocado el trabajo (educación infantil), y que estamos trabajando con una lengua extranjera, nos centraremos más en trabajar la comunicación oral que la escrita, por lo que este apartado no será nuestro principal objetivo. Aun así a lo largo de la unidad didáctica procuramos que los niños sean capaces de utilizar de forma autónoma diversos recursos tecnológicos y soportes digitales, por lo que el siguiente contenido está muy presente:

- Uso, gradualmente autónomo, de diferentes soportes de la lengua escrita como libros, revistas, periódicos, carteles o etiquetas. Utilización progresivamente ajustada de la información que proporcionan.

Por otro lado nuestra intención es utilizar los relatos digitales como principal recurso para el aprendizaje. Éstos relatos requieren de atención y escucha por parte de los niños, ya que se componen de archivos de sonido e imágenes, por lo que el siguiente contenido también es vinculante.

- Interés y atención en la escucha de narraciones, explicaciones, instrucciones o descripciones, leídas por otras personas

Por último dentro de éste bloque analizaremos el tercer apartado "Acercamiento a la literatura". La literatura aparece en todas las sesiones de la unidad didáctica, normalmente en forma de cuento o relato, aunque también hay sesiones que incluyen rimas o poesías. En las diferentes actividades pretendemos que los niños, tras una primera fase de escucha, traten de comprender el significado de cuentos y repetir las rimas, mostrando actitud positiva y de disfrute, trabajando así los siguientes contenidos del apartado:

- Escucha y comprensión de cuentos, relatos, leyendas, poesías, rimas o adivinanzas, tanto tradicionales como contemporáneas, como fuente de placer y de aprendizaje:
- Recitado de algunos textos de carácter poético, folclóricos o de autor, disfrutando de las sensaciones que el ritmo, la rima, y la belleza de las palabras producen:
- Interés por compartir interpretaciones, sensaciones y emociones provocadas por las producciones literarias.

El siguiente bloque, lenguaje audiovisual y tecnologías de la información y la representación, se centra en el acercamiento de las nuevas tecnologías al alumnado. Nosotras, a lo largo de las sesiones de la unidad didáctica utilizamos diversos recursos tecnológicos como vehículo de aprendizaje, por lo que los niños aprenden a utilizarlos correctamente, y toman conciencia de las ventajas del uso moderado de las nuevas tecnologías. La gran mayoría de las actividades requieren ordenadores, o tabletas para su desarrollo, ya que el aprendizaje gira en torno a videos, canciones, actividades interactivas y relatos digitales, por lo tanto es evidente la vinculación de nuestro trabajo con los siguientes contenidos:

- Iniciación en el uso de instrumentos tecnológicos como ordenador, cámara o reproductores de sonido e imagen.
- Acercamiento a producciones audiovisuales como películas, dibujos animados o videojuegos. Valoración crítica de sus contenidos y de su estética.
- Toma progresiva de conciencia de la necesidad de un uso moderado de los medios audiovisuales y de las tecnologías de la información y la comunicación.

Los bloques 3 y 4, que completan el área, apenas guardan relación con el objeto de estudio de nuestro trabajo, de todos modos, algunos de sus contenidos aparecen de forma implícita a lo largo de la unidad. En cuanto al bloque de Lenguaje artístico, cabe destacar que todos los relatos y actividades incluyen imágenes, con el fin de facilitar la relación del lenguaje con los objetos, sentimientos y emociones, y de trabajar el dibujo como forma de expresión, por lo que estaremos desarrollando la "expresión y comunicación de hechos,

sentimientos y emociones, vivencias, o fantasías a través del dibujo". Por otro lado con las actividades orientadas a la pronunciación de palabras o fonemas en la lengua extranjera se trabajaría la "exploración de las posibilidades sonoras de la voz".

Pasamos ya al último bloque de contenidos de éste área, el Lenguaje corporal. Teniendo en cuenta que utilizaremos la lengua extranjera como medio de comunicación en el aula es muy probable que los alumnos no sean capaces de comprender al docente o de comunicarse con él, por lo tanto el uso de técnicas como TPR por parte del maestro y de la expresión gestual por parte de los alumnos es imprescindible para el correcto desarrollo de algunas actividades de la unidad didáctica, por lo que estaríamos trabajando el "descubrimiento y experimentación de gestos y movimientos como recursos corporales para la expresión y la comunicación".

Por otro lado, también se incluyen actividades en las que los alumnos tienen que repetir, interpretar o simular situaciones, por lo que en estos casos estaríamos trabajando la "representación espontánea de personajes, hechos y situaciones en juegos simbólicos"

Si analizamos el resto de áreas del currículo, encontraremos diferentes aspectos que, aunque no tengan una vinculación tan directa con el objeto de estudio del trabajo son igualmente relevantes.

Comenzaremos con el área de conocimiento de sí mismo y autonomía personal, que se centra en proporcionar los contextos más apropiados para que el niño adquiera una imagen ajustada de sí mismo, diferenciándose de los demás y en que vaya ganando independencia frente a los adultos. Una de las principales características de nuestro trabajo es el uso de las nuevas tecnologías, ya que consideramos que el dominio de las mismas es esencial para que nuestros alumnos sean capaces de desenvolverse cómodamente en el día a día de la sociedad actual, trabajando así contenidos de éste área, concretamente del Bloque 3. La actividad y la vida cotidiana.

- Las actividades de la vida cotidiana. Iniciativa y progresiva autonomía en su realización. Regulación del propio comportamiento, satisfacción por la realización de tareas y conciencia de la propia competencia.

Por otro lado al incorporar éstas herramientas en el aula, creamos un espacio más dinámico e interactivo que fomenta el trabajo autónomo de los niños tanto a nivel grupal como individual, por lo que creemos que nuestro trabajo se ajusta perfectamente al objetivo número cuatro de ese área, "realizar, de manera cada vez más autónoma, actividades habituales y tareas sencillas para resolver problemas de la vida cotidiana, aumentando el sentimiento de autoconfianza y la capacidad de iniciativa, y desarrollando estrategias para satisfacer sus necesidades básicas".

Los diversos recursos tecnológicos que utilizaremos en el desarrollo del proyecto nos proporcionan muchas opciones a la hora de diseñar actividades, teniendo en cuenta las edades a las que va dirigida la unidad didáctica, consideramos que lo mejor es hacer uso del juego como vehículo de aprendizaje. Debemos considerar que las TIC son un magnifico recurso para el juego, que amplía los horizontes de disfrute y de aprendizaje para el niño, mientras que a su vez el uso de ratones o pantallas táctiles colabora al desarrollo de la psicomotricidad fina. Por éste motivo tratamos de que esté presente en todas las sesiones, trabajando así los siguientes contenidos del Bloque 2. Juego y movimiento:

- Gusto por el juego. Confianza en las propias posibilidades de acción, participación y esfuerzo personal en los juegos y en el ejercicio físico.
- Comprensión y aceptación de reglas para jugar, participación en su regulación y valoración de su necesidad y del papel del juego como medio de disfrute y de relación con los demás.

La siguiente área, Conocimiento del entorno, se centra en ampliar progresivamente el conocimiento sobre el medio físico y social.

Tanto las nuevas tecnologías como el conocimiento de otras lenguas son herramientas que nos facilitarán ampliar nuestro conocimiento del medio, poniendo a nuestro alcance infinidad de recursos e información. Por lo que al incluir ambos aspectos en nuestro diseño de unidad didáctica logramos que los niños actúen con autonomía, seguridad y confianza sobre los sistemas sociales más próximos, trabajando así uno de los objetivos de esta área. En cuanto a los contenidos, nuestro trabajo plantea poner en contacto a los alumnos con diversos recursos como tabletas, ordenadores, ratones, elementos de la vida

cotidiana con los que creemos que deben familiarizarse, por lo que estaríamos trabajando contenidos del Bloque 1. Medio físico: elementos, relaciones y medida:

- Los objetos y materias presentes en el medio, sus funciones y usos cotidianos. Interés por su exploración y actitud de respeto y cuidado hacia objetos propios y ajenos.

Como se puede apreciar solo hemos señalado los contenidos generales ya que los específicos varían en función del diseño de las actividades, por lo que se especificarán dentro del apartado *Materials and methods*.

2. THEORETICAL BACKGROUND

Nowadays, teachers need to change the way they teach continuously because of the need to adapt themselves to technological advances and to provide the best possible education to their students. The use of technological resources can be very beneficial for both teachers and students, though its use involves a lot of work and sometimes technological resources can be difficult to master. However, there are some digital resources such as digital stories, which can be very efficient and easy to control. Therefore, along this section we will provide techno-pedagogical information on how to create effective digital stories and on how to use them as an educational resource so that other teachers might be able to incorporate them into their teaching repertoire.

The first section of this theoretical background will focus on explaining what digital stories are, their background, and pioneers and usability, because this resource can be used for other purposes, apart from educational ones. After this basic information is provided, we will devote the rest of the section to explore the potential uses of this resource in the education field.

In the second section, we will discuss previous research and projects that have been implemented in schools, both nationally and internationally. This will be followed by a last section more focused on techno-pedagogical skills, where we will study the different programs and processes available to create digital stories, and also different implementation methodologies.

2.1. What are digital stories?

Considering we live in the information and communication society, we need to value digital tools, as they are very useful both for professional and nonprofessional aims, therefore, we have decided to explore the possibilities of a technological tool, digital stories, to teach foreign languages in nursery education.

We consider digital stories a modern extension of the ancient storytelling art, just as books somehow improved oral storytelling by preserving those stories in print, and adding images to oral stories. Nowadays, the arrival of new media devices has improved them again. Multimedia tools, like digital cameras, computers, voice recorders, and several software programs allow us to improve narrative techniques, by creating digital stories that combine animation, texts, movement and static images, music, narrative voices, and videos, thus, making stories nonlinear and allowing for interactivity.

Digital stories are at their most basic core a medium that allows everybody to share knowledge, tell stories or present ideas to the world in a simple and entertaining way. These stories are generally narrated by an author, who shares information, emotions, experiences, or ideas with an audience. They usually focus on a specific topic that ranges from personal experiences to fantasy tales, presenting any subject from a specific point of view.

There are loads of terms used to describe this practice: web-based stories, digital biographies, electronic memories, interactive storytelling…but all of them share the same basic idea. The term is not undertood as a single way of sharing information, it is also applied to a wide range of texts covering various genres as Signes (2008) illustrates:

Narrative	Information/Expository	Persuasive	Environment(s)
1. Personal Expression	4. Summary Reports	8. Advertisements	14. Participatory Environment
2. Myths/folk talkes	5. Book reports	9. Describe/conclude	
3. Short story	6. How-to directions	10. Analyze/conclude	
	7. Biographies	11. analyze/persuade	
		12. Compare/contrast	
		13. Cause/effect	

Image 1. Types of digital narratives by Signes (2008)

Different issues such as communicative purpose, diffusion media or production techniques differentiate all these texts, but they have several common aspects that allow them to be grouped under the digital stories umbrella term, such as the use of digital formats, images, voice and the main idea of creating a close bond with the audience through the emotional implication of the author, empowering thereby the communication process

As we can see digital stories are useful tools to share thoughts, values, experiences or any kind of information with any public, so they can be used in many different contexts.

2.1.1. Development and pioneers

According to the Center of Digital Storytelling, this new communicative tool emerged in the United States in the 70s and 80s thanks to art practitioners, educators and other collaborators who wanted to *"give voice to powerful stories of harm, healing, and hope in the midst of social and political conflict"* (http://storycenter.org/history/) by making art accessible to everybody. In the 90´s, new technological tools appeared and broke in how digital media could be used to empower personal storytelling. New tools such as cameras, video and voice recorders, and, of course, the internet, brought the media to another level, allowing people to share and learn from individuals all over the world.

One of the most relevant digital storytelling productions was Dana´s Atchley multimedia autobiography, *Next Exit* (1991). Among others, Joe Lambert, local theater producer, joined as a collaborator in producing the piece. *Together they discovered that people with little or no prior experience in multimedia could*

produce powerful personal stories with the new technology (http://storycenter.org/history/). In 1994, they founded the Digital Media Center, which settled the basis for teaching digital storytelling skills in community workshops. This association would become the Center for Digital Storytelling (CDS), a nonprofit organization, in 1998 in Berkeley, California.

Around the world, other pioneers such as the photographer Daniel Meadows, the researcher and digital culture consultant John Seely Brown, Brenda Laurel or Pedro Meyer found common ground in this new vision of social change. For example, in the documentary "The Civil War", in which Ken Burns used digital storytelling techniques to reveal the heart and emotions of this tragic event, is one of the first examples of the use of this tool in the genre.

This technique was also integrated into public broadcasting by BBC´s projects such as Capture Wales or Telling Lives, and in several projects around the world as Room for Storytelling by Sveriges Utbildningsradio (Netherlands), and also in television stations like Educational TV Teleac/NOT (Amsterdam), KQED, Rocky Mountain PBS, WETA and others in the US.

Nowadays, digital storytelling is a well-known media that is used in schools, community centers, films, advertisements…and there are a lot of organizations and programs that facilitate its use in all areas. However, we must not forget that the CDS, founded by the main pioneers in this area, was the main promoter of projects as well as workshops in different organizations, and made it possible to transform the way people communicated around the world.

2.1.2 Uses in education

Nowadays, there are many organizations and resources that facilitate the use of digital stories as a tool in any field, including education. Therefore, we consider it necessary to dedicate part of our project to explaining how this tool can be used in our field, its problems and benefits as well as how it can help both teachers and students to improve.

We will start by mentioning how this tool can help teachers to improve their lessons. All teachers must have a cohesive plan that includes all the curriculum

contents, taught from different perspectives in order to satisfy the multiple intelligences of students. In this respect, digital storytelling appeals to students with different learning styles, by turning linear learning processes into multidimensional experiences, which enhance the lesson by facilitating the meaningful learning of students.

Other benefit of this tool is that it can cover all content areas of the curriculum, including 21st century main skills, which are creating, communicating, and collaborating in any grade level. By using digital stories, students can be encouraged to develop these skills by allowing the author to be creative in many different ways. The communicative aim of the story also challenges students to expand word choices, and to improve their writing and reading skills. Once the production is finished, it is easy to upload to the net, so that it can become available to an international audience.

In order to be ready for nowadays society, our students must also master multimedia skills, and they can do it by using digital stories because they help them to acquire software skills by combining multimedia tools like cameras, scanners, microphones, picture and video edition, and voiceover narration among others.

As we can see it is a flexible tool, easy to adapt to any situation, allows organization in group or individual groupings, depending on the group characteristics, the resources available and the main purpose of the lesson.

2.1.3 Digital stories in the foreign language classroom

There are different ways of working with digital stories; one of the most interesting one is when the students create their own digital stories, this kind of activity generates interest and motivation, because they can learn according to their interests, and it pushes students to "*become creators of content, rather than just consumers"* (http://www.edudemic.com/8-steps-to-great-digital-storytelling/). Creating a digital story implies capitalizing on student creative talents, but they will also allow students to learn how to analyze, synthesize, organize their ideas, express opinions and of course to research using the library and the internet. This will help them to improve their literacy skills.

As we can see, the use of digital stories would enhance the communicative skills of our students, but in addition they will also work on their critical thinking skills by analyzing their own and others' stories so gaining emotional intelligence and social learning. Thanks to the use of technological tools, the production of their story could be self-guided, so students will gain autonomy, therefore teachers would have enough time to attend other important aspects of the educational process. On the one hand, student-created stories have many positive aspects, but, on the other hand, when they are allowed to choose the topic of their story and there are not stabilized topics it is quite difficult to make sure that they work on all contents level. In order to avoid this, we can use teacher-created stories to enhance lessons by facilitating discussion on specific topics related to the unit's aims.

These teacher-created stories are great resources that can serve as a hook to capture student attention; teachers know their student interests and we can create stories around them. We can also introduce in the story the contents we are interested in teaching, and at the same time narration accompanied by subtitles can also help build vocabulary. There are also some conceptual and abstract contents that are not attractive to students, but presented as a story they may become more comprehensible. "*Researchers such as Hibbing and Rankin-Erikson (2003) and Boster, Meyer, Toberto, & Inge (2002) have shown that the use of multimedia in teaching helps students retain new information as well as aids in the comprehension of difficult material.*" (Robin, 2006: 711) Digital storytelling increases their interest in exploring new ideas, and independently from the chosen topic, the use of multimedia resources when teaching assures the motivation of students, as it is an attractive, dynamic and interactive resource, and therefore, fun.

Another way of introducing digital storytelling in the classroom is through others-created digital stories. These stories can also serve as an inspiration or an example to facilitate students the creation of their own stories. It is also a great tool that offers different and realistic perspectives of the same event, and this will help our students to build critical thinking skills, and to develop sound judgment and an open mind.

- Benefits for foreign language learning

Digital storytelling is also a perfect resource if we are teaching a foreign language. When the homeroom teacher is the same as the language teacher, it is very difficult to make children talk in the new language, as they know you can understand them, but through digital stories we can create a character that only speaks the foreign language, thus, building an appropriate atmosphere for children to speak the foreign language. Moreover, it provides visual examples of all the sentences and vocabulary, and by relating this to a story it increases recall possibilities.

- Digital stories limitations

Despite all the aforementioned benefits of digital stories, they also present some possible constrains. First of all, if we want our students to create their own stories, we have to consider copyright and intellectual property. It is tempting for students to use pictures, videos and texts from the internet without acknowledging the original source and, thus, ignoring this aspect, so we should talk about this in the classroom and we must provide webpages that allow the sharing of their contents.

Other issue to take into account is timing, these kinds of projects are quite time-consuming, and, therefore, teachers must be sure that every student has enough time to finish the story. Even when we don't have enough time at school to finish the stories, we have to think twice before expecting the students to complete them at home. Though most children will have access to the resources needed to create digital stories, such as cameras, computers, scanners or the internet, if some of them are digitally excluded at home they might feel marginalized.

Digital storytelling implies autonomous work and some of our students will be able to work on their own from the beginning, but not all of them will have used these technological tools already. Therefore, when creating the didactic unit, we should establish an introductory period in which we must focus on the acquisition of technological skills more than in other aspects, and we must organize the project ensuring we can provide personal guidance for all the stories our students carry out.

We also have to consider that sometimes creating digital stories involves deep emotions, and some students might not feel totally comfortable with this, therefore teachers must create a safe and trusting environment to tap into student emotions. On the other hand, we will find students that share their personal thoughts and personal information easily, so we must make sure they know the repercussion that could have, as everybody would have access to that information.

Finally, one of the limitations that teachers find in the implementation of digital stories in the classroom use to be the technological resources. Obviously, the more access to technology we have, the easier and more complete the stories will be but as we will explain later, you only need a computer with internet access to create simple digital stories. Moreover, some researchers found out that when people experience digital storytelling, the lack of time and the little instruction of teachers in the field represent more limitations than the resources.

2.2. Research in digital stories implementation

Research on digital storytelling has focused on different issues regarding the implementation of digital stories in the educational field. They have presented positive aspects, but also limitations and problems that came across. We have chosen research focused on the use of digital storytelling with different age groups and in different contexts to provide multiple perspectives on the topic.

2.2.1 International researches

Since 2005, teachers and graduate students at the University of Houston's Laboratory for Innovative Technology in Education (LITE) in Texas have been developing a project centered on digital storytelling effectiveness in education.

In one of their papers (Dogan, 2008), they report a project in which they offered an intensive workshop on digital storytelling to three groups of public school teachers, elementary, middle and high school teachers. They were shown different ways of using digital stories in education, and then they completed a survey.

The results showed that more than half of the teachers that followed the workshop didn't implement digital stories in their classrooms at all, in most of

the cases due to barriers such as lack of resources or time. On the other hand, the teachers that implemented them reported that it was a powerful tool to convey the desired messages around a topic or a subject area, and they also stressed the increasing motivation and engagement they noticed on students. This tool also had positive impacts on students learning as they improved their *"technical skills, presentation skills, research skills, organizational skills, writing skill*s" (Dogan, 2008, p.1) and 21st century transferable skills, which are information literacy, creativity and innovation, collaboration, problem solving, communication and responsible citizenship (http://www.skills 21.org/)

 Another study (Yuksel, Robin & McNeil, 2011) analyzed the use of digital storytelling around the world through a quantitative research method. The authors used an online survey in which students, educators answered to 22 multiple choice questions organized in sections. The research got 154 usable data respondents from 26 different countries. Their answers made it possible to establish a general framework on how the tool is being used in the educational process, cultural differences when using it in different countries, and people´s perceptions about learning and teaching through this tool.

Participants from 14 of the 26 countries stated they were actively engaged in the use of this tool for educational purposes. Digital storytelling was used in those countries for different purposes such as technology literacy in Austria, healthcare education in the United Kingdom, communication in Norway etc.

The findings suggested that the tool supported students' skills acquisition in diverse subject areas. The most mentioned skills were problem-solving, critical thinking, understanding complex ideas, and writing, organizing and researching skills. They also found out that language production, creativity, socialization and discussion skills were positively affected when using digital storytelling in the classroom. Furthermore, most survey respondents highlighted that it *"allows students to construct their own understanding or experience in a content area"* (Yuksel et al., 2011, p. 7)

Regarding limitations, a number of respondents stated they felt the lack of training on how to create and use storytelling in the classroom and on how to use the new technologies more than the lack of access to technological resources. Only a few respondents reported needing *"funding support for*

community development and professional support for integrating DS into their curriculum" (Yuksel et al., 2011, p. 7)*.*

This research from Houston University (Yuksel et al., 2011) not only verified the effectiveness of digital storytelling for engaging students and developing skills but also uncovered the fact that the lack of time was identified as more problematic than the lack of resources. Our belief that not only schools with modern equipment and wide technological resources can profit from the advantages provided by digital stories agrees with the results of this research.

This hypothesis was also supported by a pilot project on digital storytelling carried out in Galway School of Education (Ireland). "*The reflective practitioner model has long been seen as the appropriate model for the professional development of teachers"* (Long, 2011: 1.). In order to find out if the use of digital stories might help teachers to promote reflection in their students, this Galway schools started this project.

The Post Graduate Diploma in Education (PGDE) 2009-2010 students were offered the opportunity of choosing between including a digital story or the typical essay in their reflective portfolios. Of the 221 PGDE students, 67 initially volunteered to create a digital story, but 49 of them refused to finish the digital story indicating time constrains and excessive workload as justifications for their decision. . Only 18 students finished their digital stories and completed a survey with very positive results. They reported considering it a rewarding and enjoyable experience that had given them the chance to reflect and be creative while they expressed themselves.

A rubric based on Moon´s (2004) generic framework for reflective writing was used to measure the level of reflection in the digital stories, but the results were disappointing. However, considering the great enthusiasm shown by the students the first year, creating the story was compulsory in the following edition of the course. This time they were given a new task, to reflect deeply into an incident encountered in their previous internship period. They also carried out a broad assessment of the year. The length of the task was amplified from eight to eleven weeks, and emphasis was placed on sharing the story with the class along the creation process and also at the end, and on increasing the feedback.

Sharing is a very important aspect of digital storytelling, which did not take place in the first year due to lack of time.

This second year, the modifications introduced improved the reflection and deep learning results, as well as aspects such as self-expression, creativity or technological skills.

Apart from providing more time and changing the main task, the sharing process was also increased, resulting in very positive outcomes on reflection and deep learning, hence supporting the huge importance previously given to feedback in digital storytelling learning processes.

Turning to research dealing with digital stories and cognitive development, Nelson (2006) explored the processes of multimodal textual communication. In his study, "*he attempts to apply Kress's (2003) notions of synaesthesia, transformation, and transduction to the analysis of four undergraduate L2 writers' multimedia text creation processes*" (p. 56) and he uses digital stories as the main tool.

The results and conclusions of this research showed that research participants, who were non-native English speakers, experienced great improvements in the quality and volume of their authorial voice when using multimedia writing. Therefore, this piece of research further supports that the use of digital storytelling for foreign language learning seems to be beneficial not only for language and content, but also for self-knowledge, critical thinking skills advancement, and the development of judgment and creativity.

2.2.2 National research

In Spain, Signes (2008) studied digital personal narratives uses and possibilities, not only for language acquisition but also for content learning in the classroom.

The 32 students of English as a foreign language involved in the project had never had any contact with digital storytelling before, so they were introduced to it through a comparison between traditional narratives and digital narratives. Once the students had an overview of what digital storytelling was, they were

offered a wide variety of topics, and they had to reflect about what the best tools would be to produce a digital story.

Then, they were introduced to the use of the software programs of their choice, mainly Photostory 3, Windows Movie Maker and Audacity. They were also taught how to design a storyboard, and then they were given a month to hand in the first draft. Teacher guidance was offered during all that time.

After a month and a half, the participants had created 13 successful digital stories that were shared through ePortfolio. In her conclusion, Signes (2008) affirmed that digital stories were an effective tool for the introduction of new contents. This finding is highly interesting for our TFG, as it focuses on the very first stages of foreign language acquisition, when there is mainly learning of new vocabulary terms before the following phase of sentence construction.

Digital storytelling also seems to be an aid to improve students "*time management, learning about problem solving, communication skills and to develop interpersonal qualities such as teamwork, critical thought, information collection and interpretation of data, analysis of texts and images, synthesis and self-evaluation*" (Signes, 2008, 8). She also highlighted that the use of this tool in education could be the first step to reducing the gap between teachers and students. Other skills such as communication and interpersonal qualities, which are the most important 21st century skills also showed improvements

In Madrid, Ramírez Verdugo & Alonso Belmonte (2007) analyzed the effects that digital stories could have on the understanding of spoken English in classrooms from six primary state schools with 6 year old students. The research was carried out over 22 weeks in the 2005 academic year, and there was usable data from 208 students; 103 in the control group, who had two 45-minute English lessons per week with the textbook as the main tool, and 105 participants in the experimental group, who received one 45-minute lesson per week with the textbook, and another 45-minute lesson with digital storiesas the main tool.

The quasi-experimental research design used sixty nine digital stories which were selected according to the level, needs and interests of the students from the Kindersite website.

By comparing pre-test and post-test results in both groups, it was concluded that the outcome of the study supported the initial belief of the authors

"*regarding the fact that experimental group learners were able to comprehend basic linguistic structures and vocabulary and provide a correct answer. In fact, even though the experimental group learners started from a slightly lower level of English, they improved their listening comprehension skills and outperformed the control group*" (Ramírez Verdugo & Alonso Belmonte 2007:11).

However, the authors underlined the urgent need to develop materials and resources that allowed everybody to use this tool in the classroom.

2.3. How to create a digital story

In this section, we will go through some steps that can guide us in the process of digital story creation and we will signal several considerations to be taken into account when using digital stories in the classroom.

One of the most problematic points of creating digital stories is how to start, and how to organize our ideas. The Center for Digital Storytelling (CDS) developed the *Seven Elements Framework*, which includes useful steps to follow when creating digital stories in general. However, we have to consider that our aim is to integrate digital storytelling in nursery education, so giving students access to software and the *Seven Elements* as instructions would not be enough.

As teachers we have to plan ahead and consider what we want to focus on: the context, the kid's personalities, their age, their needs, their cognitive development, the resources available and other aspects that will definitely determine how we must organize the lessons and what kind of digital storytelling is more suitable in order to reach our objectives. In the following image, we show a modified version of the *Seven Steps,* provided by the CDS, which has been adapted in order to provide a better crutch for teachers when implementing this tool in the classroom.
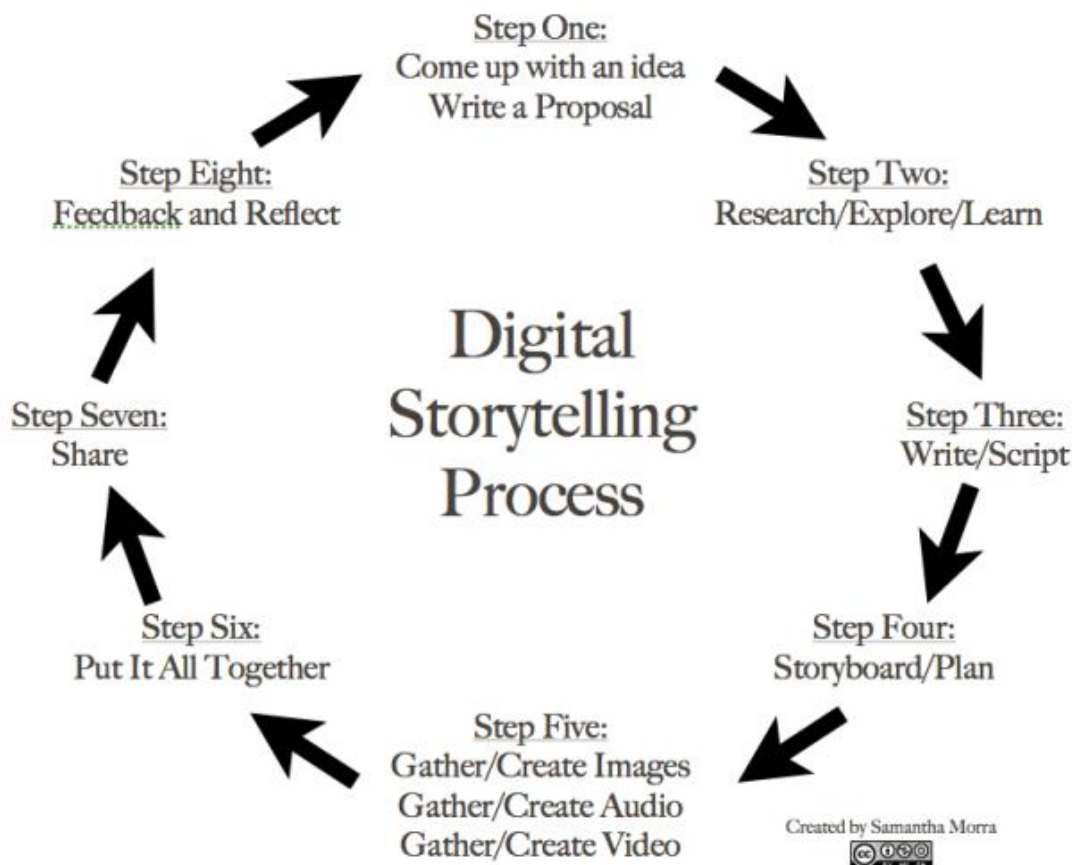
Image 2. Digital storytelling process. (http://www.edudemic.com/8-steps-to-great-digital-storytelling/)

We can also incorporate another initiative from the CDS, The Story Circle step, that consists on making a circle with the kids and sharing with the rest of the group the first draft of our story, so we can give ideas to others and get useful feedback from them.

Apart from the organization, there are some aspects that must also be considered. As we have already said, this kind of projects can be time-consuming, and it is tempting for teachers to tell students to research, take pictures, or complete part of the project at home. However, we have to take into account the social and technological context of each student, as sometimes they might not have access to the technological tools needed, or the family may not allow them to manipulate this material.

Finally, we have to assess our own possibilities as teachers, whether the activities involved can be done by children on their own or if each project needs to be guided personally. In this last case, we have to make sure we are able to

attend all the ongoing projects. In case the group is so big that it does not allow individual projects, we can group students in order to have an affordable number of projects.

2.3.1 Tools and resources

An important consideration which will influence the organization of the project are the resources available. The most basic digital stories can be created with the only resource of a computer with access to the internet. Then if we can also count on a video camera, a voice recorder, a projector, a digitalized library, or an interactive blackboard, the process will be easier, more comfortable and we will have the possibility of including effects to the story to engage the children as well as to provide awesome visual results.

If we only have access to a computer to create our story, we will surely need access to some copyright free websites, which will provide images, soundtracks and other effects that will improve our story. The following websites could be used:

For sounds:	For images:
IClipart	IClipart
Audacity	Stockfreeimages
Find Sounds	Clker
Freeplay music	Pics 4 Learning
Jamendo	Flickr
Jam Studio	Be Funky
Partners in Ryhyme	

There are other websites that offer images, music and the possibility of adding special effects to them, for example StoryBird. This website, apart from allowing students to read, write, and collaborate on digital picture books, also allows them to incorporate images to their stories. Other option is to substitute real pictures for drawings, by creating animated comics in webs like Kerpoof or

Gamic. These websites provide already set scenes and permit the addition of animation, movements, music, and speech bubbles.

Animoto is another web-based application that can provide awesome special effects for our stories. Kerpoof and Gamic are other options if want to develop creativity and writing skills, rather than the oral production of the language, because they allow students to communicate through speech bubbles, which makes them suitable when we do not have access to a voice recorder.

There are also some programs which are more appropriate than others depending on the topic. For example, if we want to work on historical events, we may choose Digital Vaults, a movie making tool that gives student access to national archives, providing images with historical information that they can edit and include in their story. If instead we want to work on judgment and critical thinking, we would recommend the web-based program VoiceThread, as it enables students to create a complete digital story, with the extra affordance of inviting others to record commentaries in your story making it much more interactive.

PhotoStory3, Microsoft's Movie Maker, or Apple's iMovie are also great movie editors that provide easy ways of combining images, music, voice and videos. Fotobabble does it as well, with the difference that it also allows you to share it straight to the blog via the Twitter feed.

One of the simplest ways of creating a digital story is through Microsoft Power Point. Students can share PowerPoint-like presentations online and others can comment on them. A great extra-feature of this program is the possibility of recording narration for each slide.

Finally we can find several distribution systems for global audiences such as YouTube, Hyperlink, Podcast or Vimeo, and for a particular audience through blogs, social websites, DVD´s, pen drives, or e-mails. In case we are working with Power Point to create our digital story, we can also use Slidestory as a sharing platform.

3. Materials and Methods

3.1 Context

The project will be developed in Ireland, concretely in a small town called Ashbourne located in Country Meath. The country's official language is English, but Irish is taught as a second language in many educational institutions, and, therefore, many students are already used to the acquisition of second languages. This is expected to influence positively the introduction of a third language, so we considered this context a great option for the development of our study. The town is not very big but it offers several educational options in both pre-school and primary education levels.

The project is going to be carried out in Bumblebee Daycare. This school integrates the acquisition of a second language in their classrooms through full immersion programs. This means students should be used to CLIL methodologies and to the second language acquisition process, which will help us to introduce Spanish as a foreign language.

3.2.1 The school

The school provides a natural, caring and enhancing environment, which allows the holistic development of pre-school year students. They also facilitate their transition to primary school by offering the Naíonra (a place for young children) program, explained below.

Through continuous observation and adaptation to the student interests and needs, they ensure the fulfilment of children's greatest potentials. The school is offered as an extension of their student home, so there is close communication with the families. Therefore, our project suits their aims perfectly by providing digital productions made by the children, as a result of their learning process, that can be shared easily with the families through their website.

The school organizes the daily lessons following this routine:

- Free Play: This allows children to choose their own activities from well-defined activity centers.
- Group Time: This slot consists of activities such as crafts, stories, songs, etc, that can be self-guided, or teacher guided activities, depending on the children autonomy. The topics are chosen by the children unless special occasions, when the teacher introduces a topic, and if students are interested in it they keep working on it.

- Gross Motor Play: This time consists of self-guided or teacher-guided activities that promote physical development. It is usually combined with the break.

- Hygiene Time: This provides an opportunity for children to acquire good personal hygienic habits, and is followed by lunch time.

- Transition Time: It refers to a short time period between two activities that are usually filled by songs, allowing the teacher to get the materials ready for the next activity.

- Rest Time: This period provides an opportunity for younger children to sleep and for older children to rest. Alternate quiet activities are available for children who do not need to sleep.

The routines are combined depending on the student needs, the level and the class.

3.2.2 The class

The classes where we are going to develop our study are the Naíonra class, with five students, and the Early Chilhood Care and Education (ECCE) class, with nine. Both run from Monday to Friday from 9:30 to 12:30, but while the Naíonra class encourages children to learn Irish as a second language, the ECCE class is focused on teaching through English language.

Particularly in the Naíonra class, a different methodology from the rest of the classes is used. It is called "Tumoideachas", which means immersed education, and it seems to be a combination of Content and Language Integrated Language (CLIL) and Total Physical Response (TPR). The teacher always uses Irish in the classroom, in her materials and to communicate with the students. Due to their early age and the fact that they are in the very beginning stage of the process of language acquisition, it is necessary to use techniques such as TPR, which by using appropriate intonation, gestures and body language helps students to understand the teacher even when they do not master the language.

Besides the language in which the lessons are imparted, the rest of the organization is the same. Both try to improve student skills through games, and give priority to students' interests.

Topics always revolve around students' interests, and from those topics, the teacher is able to work on the contents she is interested in. Assessment is carried out through continuous direct observation of the children, determining when they feel confident enough about the contents they are working on and when to go further with the oral production of the language. In order to enhance student development in every area the classes are laid out in the following spaces:

- *"An Cúinne Baile" – the home corner/area, to introduce vocabulary about food, clothing etc.*
- *"An Cúinne Ealaíne" – the art corner/area, to introduce colours.*
- *"An Cúinne Ciúin" – the library corner/area, to aid comprehension of the language.*
- *"An Cúinne Gainimh agus Uisce" – the sand and water corner/area, to introduce language through texture.*
- *"An Cúinne Dúlra" – the nature corner/area, to introduce plants and animals.*
- *"An Cúinne Ceoil agus Fuaim" – the music and sound corner/area, to aid vocabulary acquisition through music.*
- *"Spás Lasmuigh" – the space outside, to aid vocabulary through play and nature.*

3.2. Method

3.2.1 Design

Our study focuses on whether digital storytelling allows vocabulary acquisition, to what extent and whether its use shows the same results in foreign languages and in second languages acquisition.

The school where the project was developed does not count on technological tools. That lack of resources gave us the chance to explore the real possibilities of successful implementation of digital storytelling projects in this kind of environments.

We designed five lessons that use digital storytelling as the main tool for vocabulary acquisition, using images and audio in a digital format because on

the one hand it was more comfortable for us, as we did not have to print and manipulate all the material, and on the other hand, because technological tools help us to increase students engagement and motivation, as well as provide more fun and attractiveness.

Bearing in mind the age and the context where we were going to implement the sessions, we considered the evaluation of vocabulary acquisition the best measurable way to test the effectiveness or ineffectiveness of the tool.

A pre and post-test were designed to measure improvements in vocabulary acquisition in the two groups where the project was implemented; in one of them Irish as a second language was taught and in the other Spanish as a foreign language. In order to be able to measure whether the improvements were the same independently from the language used, the project compared the results of both groups to determine if digital storytelling effectiveness depended on the language used in the implementation.

3.2.2 Participants

There were14 students involved in the study, nine from ECCE and 5 from the Naíonra classroom, all in their last year of pre-school. They were all four and presented the usual characteristics of the age; they were enthusiastic and easy to motivate, especially if you revolved around their interests.

All of them were accustomed to choosing the lessons topics, and to learning through their interests, but not all of them were used to second or foreign language acquisition techniques. Only students from the Naíonra class, who had started with the Irish immersion program this year, and four students from ECCE class, who had been studying in English, although it is not their mother tongue, since the previous year were used to the acquisition of second or third languages. For the Naíonra students, Irish is their SL, for S., A.M. and M, in ECCE class English is their SL, and the third language in A.S.'s case.

On the one hand, this was a great advantage, because though these students were not used to the new technique which was going to be used, they were already used to acquiring new languages. For the rest of the students in ECCE class this would be their first contact with a FL.

On the other hand, we had to consider that students were not able to communicate in any of the languages which were going to be used, so communication would take place in English. For Naíorna students and ECCE students whose mother tongue was English, this would not be a problem, but it might be a problem for the four students from ECCE class who were not proficient in this language. It might be harder for them to follow the lessons. However, no further problems were expected. In order to facilitate children acquisition of the new language, we tried to adapt the unit to their level, needs and interests.

3.2.3 Special needs

In general, student behavior and skills fit within the parameters of their age, except C., who presented some particularities. They had not started yet with reading or writing skills, so any problem in these areas was unknown. However all of them were proficient in English comprehension, except C., who presented a slight delay in the oral production of the language. This child´s sentences construction was not always adequate.

He used shouting to communicate with his environment, which made it difficult to develop his social skills. He was also hyper and obsessed with specific games, colors and topics.

The students S.B, A.M, M.D and A.S, from the ECCE class had serious difficulties to communicate in English, since it was not their mother tongue.

According to this information, it was assumed that our unit had to be adapted to C's interests so that he could participate in the activities. Considering he was not yet proficient in the mother tongue, we expected he would find more difficulties to follow the lesson in other languages than the rest of the students, so some modifications were introduced.

- Adaptations

Considering the profile of participants regarding special needs, changes were not necessary in the lessons design, but they were in the teacher procedure.

In the Naíonra class the teacher would try to involve C. by using one of his interests, Sky Landers cartoons, by asking him for help in order to keep his

attention and by letting him deliver the materials so he could move, and, thus, an overactive attitude could be avoided while the activity was taking place.

3.2.4 Instruments

- Teaching instruments

The designed project focused on vocabulary acquisition, and digital storytelling was the main teaching resource. It was based on the production of a digital story and it started with a letter received that we had to answer. In one class, the letter was from Ireland and in the other from Spain.

The Power Point program and a lap top were used for the letters and the test; the iPad was used to take the required pictures and to record the audios for the letters. Apart from the technological tools, crayons, markers, pencils, paper and the blackboard were also used for the drawings. For the review activities, the letter in PPT was used, but only the images were used to remember the vocabulary. A table was also designed for each session, with the corresponding activities and procedure. These tables served as a guide for the project.

 A digital story, which was a letter from a kid, explaining about him, his family, his school and his hobbies was created to provide a meaningful context (see annex 1.1 for the Irish version and 1.2 for the Spanish version). The sample letter, common for both classes except for the language used, one in Irish and the other in Spanish, was used in the first lesson. It consisted of 17 slides, and two audios of four and a half minutes long. The task for the kids was to create their own digital story, in some occasions as a group and in others individually, to answer back. .

Finally to upload the kids digital stories to the web (see annex 4.1 for the Irish version and 4.2 for the Spanish version), a video of the screen of the lap top while we reproduced the digital story (with the iPad) was recorded so that the audience could see each image and listen to the right audio at the same time.

- Teaching procedure

This project lasted a month and it consisted of five lessons, two review lessons and three tests. The first week was devoted to analyzing the context and to evaluating the students' level of proficiency in the target language with the first

test. Participants were taken outside the class and the researcher played the Power Point presentation, while the students had to signal the words they recognized.

During the second week, the students were taught using the five lessons planned in both languages, one lesson a day in each classroom, from 9:30-10:00 in the Naíonra classroom, and from 10:00-10:30 in the ECCE classroom.

These lessons were organized in three blocks, Warm up, Practice and reflection. The first lesson served as an introduction presenting a digital story to the students, the second lesson was focused on how to make our own digital story, the third lesson attended to creating the group parts of the story, that dealt with common things for all the students such as their school, their town etc. In the fourth lesson, the individual part, in which each student presented himself or herself and talked about his/her family and hobbies was developed. The last lesson was devoted to playing the resulting letters and sharing them in the internet.

In the Naíonra classroom, the Irish speaker teacher leaded all the lessons while in the ECCE class, the Spanish speaker teacher did. Depending on the lesson, the activities were developed in small or big group. The following tables showed detailed information of activities and the correspondent procedure.

Lesson 1	
Warm up	Focus on gaining confidence and introducing the students into the use of the tools needed for the digital storytelling production. This activity introduces the computer and the iPad to the students, by talking about what they can do with them, discussing the questions and solving their doubts.
	Then the students will be divided in two groups for autonomous exploration of the tools, one with a computer and other with an iPad. One teacher will be with each group, to make sure all the students have the chance of trying the tools, and to introduce the vocabulary of the project if possible. They will take some pictures and record some audios. After around five minutes of

	experimenting, we will gather students in a circle and talk about the experience, showing the results to the other group.
Practice	Students will sit in a circle and they will be told that they have received a digital letter. The teacher will also make some questions such as "what do you think a digital letter is?" Then she will show them the first image of the letter, and they will have to guess what it is about, then we will give them some clues, showing some pictures of the story, and we will talk about them in order to familiarize them with the vocabulary used in the story. Finally we will play the letter, which includes some questions that the students are supposed to answer with the help of the teacher, who will repeat the question if needed.
Reflection	The digital letter will be played again, but without the audio. Students will be asked to remember what the kid told them in each image.

Lesson 2	
Warm up	In this activity we will talk about the letter making some questions such as what kind of letter is it? or, what topics does it talk about? We will also make them think about what they would say in their own letter, for example when the kid talks about his family we will ask them if they have brothers or sisters, or when we talk about the favorite color of the kid in the letter we will ask them their favorite color as well. Finally we will make some more questions like; do you want to answer back? So what do we have to do? What do we need? So that we make them reflect about the tools and materials they need to create their own letter
Practice	All the ideas and reflections from the previous activity will be used in this one. We will propose to do a schedule to organize student ideas. They don´t know how to write so the schedule will be made

	out of drawings of the topics we want to talk about. In order to define the topics we will do a brainstorming in which student ideas will be shown. The most appropriate ideas for working on the target vocabulary will be selected for the story. Students that have not cooperated in the brainstorming will be asked to do the drawing in the blackboard, if they don't want to, we will offer it to other students.
Reflection	The main activities for the next lesson will be explained, motivating them to think about interesting pictures to take or what they want to say about themselves, trying to keep them engaged for the following day.

Lesson 3	
Warm up	We will briefly refresh the topics we chose the previous day for our story. Then we will focus on the common ones for all the students, like the school, the classroom or the town, talking about them and deciding what we want to show, what we want to take a picture of, and what we want to say to accompany the picture.
Practice	This part of the lesson will be like a small trip for the students. The entire group will go to the required places to take the pictures, taking the pictures by turns, if there are not enough things to take pictures of, various students will take pictures of the same thing. The students will only take pictures of places in the school or in the very nearby, if other pictures are needed we will take them from the internet or the teachers will take them in their free time. An audio file for each image will be recorded in the moment we take the picture. We will go to a quiet place with the student that took the picture and we will record it with them. If they are not able to produce the sentence by themselves the teacher will model for them.
Reflection	Back in the class we will review the images and add them to the

Power Point in the order decided in the warm up. We will add the audio at home since it takes a long time to attach to the Power Point.

Lesson 3	
Warm up	We will refresh again all the topics in the story, but this time focusing on the individual ones. We want to present ourselves so each student will do a drawing of him/herself, they will do it in front of the mirror.
Practice	Each student will take a picture of his own drawing. Then we will sit in a circle and one by one will decide what they want to say to accompany the picture, we will record it in this moment. We will help them by giving ideas and modeling for them if they don't know how to say the sentence.
Reflection	When they have all finished with the recording we will add the images to the Power Point. We will add the audio at home since it takes a long time to attach them to the Power Point.

Lesson 5	
Warm up	We will talk about the story encouraging the students to remember the different pictures and to review the vocabulary. We will ask the following questions: - What is that? - Where was it? - Who took that picture? - What did we say about it?
Practice	First we will play the story without the audio encouraging them to remember the audio that accompanies the image. Then we will play the complete story, including the audio.
Reflection	Finally we will talk about how to share it and the different options

> to do it. We do not know the other kid address, so we will propose
> to post it in the school website so that our parents and ourselves
> can always see it. For that, we have to get in contact with the girl
> that is in charge of that, and send the letter to her. We will send
> her an e-mail, the kids will tell us what to write and will be able to
> see how we write and attach the document to the e-mail.

After the week planed above, two review sessions took place in each class in the third week. The first one consisted on playing again the letter without the audio. Students had to remember what the kid had said in that image, finally we used the Power Point for the test activities, again without the audio, and we asked students to say out loud the name of the objects they remembered, and we would say the rest.

The second review lesson was a game. We printed the images used for the test and placed them around the classroom. We said a word from the vocabulary and the children had to look for it and touch it.

The post-test also took place in this third week while the delayed test took place in the fourth week.

- ▪ Research instruments

In order to evaluate students' improvements we used a test which was the same Power Point presentation for each classroom, one in Spanish and the other one in Irish (see Annex 2.2 for the Irish version and Annex 2.3 for the Spanish one), was used.

The presentation had 16 slides. Eight of them contained images and an audio attachment. The other eight slides were placed between the topic images, as a presentation. The images were the objects that represented the vocabulary words of the topic, and the audio included the pronunciation of all the words in the target language. Two distractors were introduced in each topic page to avoid children guessing the last word by discarding.

The slides appeared in the following order, and with the following contents.

- ▪ Colors

Image of a rainbow and three circles, the colors that appeared were red, green, blue, yellow, orange, white, black, purple, grey and brown. All the colors were in the rainbow unless black brown and grey. All the colors appeared in the audio in the order mentioned before, unless brown and grew, that were used as distractor images.

- Numbers

The slide was an image of the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 24 spread around the slide. They appeared in the audio in the order mentioned before, unless 11 and 24, which only appeared as distractor images.

- Shapes

The image showed a circle, square, rectangle, triangle, line and rhombus. They all appeared in the audio in the order mentioned before, unless rhombus and line, which were used as distractor images.

- School

The slide had pictures of a table, a chair, a school, a puzzle, crayons, toys, a teacher, friends, a blackboard and a bag. They appeared in the audio in the order mentioned before, unless bag, which only appeared as a distractor image.

- Family

The images of a mom, a dad, a brother, a sister, a grandpa, a grandma, a dog, a cat, a fish, a tortoise and a bird appeared in the slide. They all sounded in the audio in the order mentioned before, unless bird and tortoise, which only appeared as distractor images.

- Technology

Images of a computer, a camera, a picture, a video, play, stop, switch on, switch of and a radio appeared in the slide. They appeared in the audio in the order mentioned before, unless the radio, that only appeared as a distractor image.

- Hobbies

A picture of people dancing, playing, reading, swimming, playing football, singing, coloring, watching TV, playing video games and cycling appeared in the slide. They appeared in the audio in the order mentioned above, unless cycling and playing video games, which were only used as distractor images.

- Description

Images of big, small, beautiful and ugly things, as well as a hat and a sharpener appeared in the slide. They all appeared in the audio in the order mentioned above, unless sharpener and hat, which only appear as distractor images.

- Research procedure

All the tests followed the same procedure; students were tested individually and in an empty classroom in order to avoid distractions and other students listening to their classmates wrong or right answers. Students were shown the Power Point with the audio. The audio was stopped after each word and students had to point at the right image. If they had doubts or they had not understood the word it was played again, a maximum of three times. The researched noted down the results, and assigned   a mark of 1if students pointed the first time they heard the word, 2 for pointing the second time, 3 the third time and 4 if they could not answer it correctly any of the times.

This procedure was explained to the whole class in Irish or Spanish depending on the classroom, and the students were asked to repeat the procedure to the teachers, just to ensure they understood the instructions.

Data analysis

The marks of each student were placed in tables and were grouped, first, by topics to see if there was any difference depending on the topics, and, secondly, the total result of each student was obtained to see their progress by comparing the results of the pre, post and delayed post-test. Finally, the marks of all the students in each class were also grouped and compared in order to determine if digital storytelling effectiveness was subject to the language used in the implementation.

4. Results and discussion

As can be seen in Table 1, and considering that higher scores indicated less knowledge of the terms, the average improvement of all students was of 20,75 points. Consequently, it can be said that all the students improved their knowledge of vocabulary along the implementation of the project.

The Naíonra students improved an average of 32 points, while ECCE students only improved an average of 14.5. This difference could be due to the previous knowledge of the Irish language of the Naíonra students.

Other significant difference is that while Naíonra students score in the delayed post-test was 3,6 better than in the post-test, ECCE students score was 4 points worse in the delayed post-test than in the post-test. On one hand the uncommon improvement of Naíonra class students could be because all their lessons are in Irish, and that helped them to keep improving. On the other hand besides the ECCE class got worse results in the delayed post-test than in the post-test the difference is not as big as it usually is in other studies, so we can conclude that Digital storytelling can be useful to enhance significant learning.

Some of the vocabulary words used in the project have similar pronunciation in the English language; English speaker students of the ECCE class as well as all the students of the Naíonra class were able to recognize more of these similarities in the post-and delayed post-test than in the pre-test.

Finally, we have realized that after the implementation of the project it was easier for all English speaker students to identify the words with similar speech in their mother tongue language and in the foreign or second language.

Test 1. Average results by class

Class	Test	Colors	Numbers	Shapes	School	Family	Technologies	Hobbies	Description	Total
Naíonra class	Pre-test	17,6	10	5,6	20,2	18,2	22,6	26,6	14,2	135
	Post-test	14,6	10	5	15,2	13	17,8	20	10,8	106,4
	Delayed post-test	12	10	4,2	15,2	12,2	18,4	19,2	11,4	102,8
ECCE class	Pre-test	30,2	38,7	13,7	34,6	31,2	30,5	29,8	15,2	224,4
	Post-test	26,3	35,5	12	31,3	27,1	28,1	30	15,6	206,1
	Delayed post-test	28,7	35,8	11,8	32,6	26,2	29,6	30,3	15,6	210,1

4.1 Naíonra class

As can be seen in Table 1, and considering the lowest a score is the more words a student knows, in the pre-test all students from the Naíonra class had the minimum score (10 points) in numbers and good scores at colors (17,6 from a minimum of 8), shapes (5,6 from a minimum of 4) and family context (18,2 from a minimum of 9), while in school (20,2 from a minimum of 9), technology (22,6 from a minimum of 9), hobbies (26,6 from a minimum of 8) and description (14,2 from a minimum of 4) topics the correct answers were less common and seemed to be hazardous sometimes.

In the post-test, all students kept having the minimum score in numbers (10 points) and they got better results in all the other topics, improving a lot in school (5 points better), family (5,2 points better), technologies (5,2 points better) and hobbies (6,6 points better). We also saw improvements in the colors (3 points better), description (3,4 points better) and shapes (0,6 points better) topics.

In the delayed post-test, after a week without digital storytelling lessons, students showed improvements in colors (2,6 points better than in the post-test), shapes (0,8 points better than in the post-test), family (1,8 points better than in the post-test), technology (1,2 points better than in the post-test) and hobbies (0,8 points better than in the post-test), they got the same punctuation in numbers and school, while their knowledge in description got worse (0.6 points worse).

Summing up, the best improvements took place in colors (5,6 points better than in the pre-test), family (6 points better than in the pre-test) and hobbies (7,4 points better than in the pre-test) and the worst results appeared in shapes (1,4 points better than in the pre-test) and description (2,8 points better than in the pre-test). In general, students showed higher improvements in those topics in which their scores had been lower and, thus, their knowledge of the words higher in the pre-test.

Table 2. Results by student and test in the Naionra class

Naíonra class		Colors	Numbers	Shapes	School	Family	Technologies	Hobbies	Description	Total
L.D	Pre-test	8	10	4	14	11	17	22	16	102
	Post-test	9	10	4	9	9	11	11	6	69
	Delayed post-test	8	10	4	11	9	13	14	6	75
C.M	Pre-test	26	10	4	33	24	32	32	16	177
	Post-test	29	10	6	26	20	26	27	16	160
	Delayed post-test	23	10	5	24	18	24	24	16	144
M.H	Pre-test	16	10	5	12	12	17	27	13	112
	Post-test	10	10	4	14	10	17	17	13	95
	Delayed post-test	8	10	4	13	10	16	18	11	90
J.M	Pre-test	13	10	5	18	17	19	26	13	121
	Post-test	8	10	4	12	10	14	25	6	89
	Delayed post-test	8	10	4	12	11	18	17	11	92
E.R	Pre-test	25	10	10	24	27	28	26	13	163
	Post-test	17	10	7	15	16	21	20	13	119
	Delayed post-test	13	10	4	16	13	21	23	13	113

As can be seen in Table 2, the best students in the pre-test were L.D and M.H and the worse were C.M and E.R. Despite student´s improvement along the project, the best and the worse students were the same in all the tests.

It is interesting to see how digital storytelling helped to unify the level between students, especially in C.M case, for whom digital storytelling worked as an amazing engaging activity. Both, students with good results and students with bad results in the pre-test improved after the digital storytelling implementation but as can be seen in Table 1, C.M and E.R got the higher improvements of the class, while L.D and M.H, who had the best marks in the pre-test did not improve as much. Moreover, L.D and J.M, both with good results in the pre-test, were the only students who got worse marks in the delayed-test than in the post-test.

4.2 ECCE class

As can be seen in Table 1, in the pre-test in the ECCE class the correct answers were less common and seemed to be hazardous sometimes. Students got 30,2 points in colors (from a minimum of 8), 38,7 points in numbers (from a minimum of 10), 13,7 points in shapes (from a minimum of 4), 34,6 points in school (from a minimum of 9), 31,2 points in family (from a minimum of 9), 30,5 points in technologies (from a minimum of 8), 29,8 points in technologies (from a minimum of 8) and 15,2 points in description (from a minimum of 4).

In the post-test students improved more in colors (3,9 points better than in the pre-test), numbers (3,2 points better than in the pre-test), family (4,1 points better than in the pre-test) and in school (3,3 points better than in the pre-test). While the results got worse in hobbies (0,2 points worse than in the pre-test) and in description (0,4 points worse than in the pre-test).

The results in the last test were very similar to the post-test results. Students improved in school (1,3 points better than in the post-test), in family (0,9 points better than in the post-test), and in shapes (0,2 points better than in the post-test) while their results were worse in technology (1,5 points worse than in the post-test), hobbies (0,5 points worse than in the post-test), colors (1,4 points

worse than in the post-test) and numbers (0,3 points worse than in the post-test). They got the same score in description.

All in all, the best improvements took place in numbers (2,9 points better than in the pre-test) and technologies (5 points better than in the pre-test) and the worst results were in hobbies (0,5 points worse than in the pre-test) and description (0,4 points worse than in the pre-test). In general, students improved more in the vocabulary that was directly related to them, their age, family and close environment.

Table 3. Results by student and test in the ECCE class

ECCE class		Colors	Numbers	Shapes	School	Family	Technologies	Hobbies	Description	Total
M.D	Pre-test	32	37	16	33	33	32	32	16	231
	Post-test	32	36	16	27	33	29	32	16	221
	Delayed post-test	32	37	16	30	30	32	29	16	222
A.M	Pre-test	32	40	16	36	36	32	32	16	240
	Post-test	29	36	13	36	33	32	32	16	227
	Delayed post-test	32	40	13	33	30	29	32	16	225
R.B	Pre-test	29	37	14	36	31	29	29	13	219
	Post-test	21	37	11	29	26	24	26	16	190
	Delayed post-test	23	34	13	33	25	29	32	16	205
L.C	Pre-test	29	37	10	33	27	26	25	16	203
	Post-test	22	28	8	30	28	26	32	13	187
	Delayed post-test	26	28	7	30	25	29	32	13	190
D.M	Pre-test	32	40	13	36	33	31	32	16	233
	Post-test	21	34	7	28	16	23	32	16	177
	Delayed post-test	24	33	8	30	18	26	26	16	181
S.B	Pre-test	28	40	16	36	36	32	29	16	233
	Post-test	32	37	13	33	30	32	29	16	222
	Delayed post-test	32	37	13	36	30	32	32	16	228
M.R	Pre-test	32	40	13	33	25	32	29	15	219
	Post-test	25	40	14	30	26	29	29	16	209
	Delayed post-test	29	40	11	33	27	32	29	16	217
E.N	Pre-test	29	38	10	36	30	32	29	16	220
	Post-test	29	35	10	36	25	32	26	16	209
	Delayed post-test	32	37	10	36	25	32	29	16	217
A.S	Pre-test	29	40	16	33	30	29	32	13	222
	Post-test	26	37	16	33	27	26	32	16	213
	Delayed post-test	29	37	16	33	26	26	32	16	206

As can be seen in Table 2, the best student in the pre-test were L.C and the worse were A.M, D.M and S.B. In the post-test, R.B, D.M and L.C, got the best results and A.M, M.D and S.B got the worse results. Finally in the delayed post-test, R.B and L.C got the best results while A.M, M.D and S.B got the worse results.

Spanish was a totally new language for these students so we understand that all the positive results given by the students whose mother-tongue is not English (A.S, S.B, M.D and A.M) were hazardous, while English speakers were able to identify some words with similar speech in Spanish and English, but not all of them.

We found out that besides the best results were always achieved by English speaker students, there were not important differences between native and non-native student's improvement, so we understand that it does not matter whether the new language is a second or a third language for the effectiveness of digital storytelling.

After the implementation of the project, students showed to have acquired the vocabulary we most used in the class.

6. Conclusión

Como se puede observar en las tablas 1, 2 y 3, todos los alumnos que han participado en el proyecto han experimentado mejoras en el dominio del vocabulario trabajado, probando la efectividad de los relatos digitales para trabajar vocabulario en educación infantil. Aun así hay que reconocer que hay diferencias claras entre la media de mejora en el aula Naíonra y en el aula ECCE.

En el aula Naíonra, donde se trabajó con el Irlandés como segunda lengua, los alumnos mejoraron 17,5 puntos más que los estudiantes del aula ECCE, donde se introdujo el castellano como lengua extranjera. Hay que tener en cuenta que los alumnos del aula Naíonra ya tenían cierto conocimiento de la lengua mientras que los alumnos del aula ECCE comenzaban de cero, de ahí que se hayan dado diferencias tan importantes entre ambas clases. De todos modos podemos señalar que los relatos digitales, aunque han demostrado ser de utilidad tanto para la introducción de una lengua extranjera, como para trabajar una segunda lengua, han sido más efectivos como técnica de ampliación de una lengua conocida que como técnica para introducir lenguas extranjeras.

Otra diferencia significativa entre ambas clases ha sido que la media de los resultados del post-test retardado en el aula Naíonra ha sido mejor que la media del post test, mientras que en el aula ECCE ha sido peor. Esto determina que cuando los alumnos ya tienen cierta base en el idioma es más fácil que el uso de la técnica de los relatos digitales dé lugar al aprendizaje significativo de los contenidos, mientras que cuando se trata de una nueva lengua los niños memorizan conocimientos pero no de un modo tan permanente.

En cuanto al tiempo y los recursos, coincidimos con otros estudios que recalcan que es necesario disponer del tiempo suficiente para desarrollarlos sin presiones, sobre todo cuando se trata de la primera vez que los alumnos tratan con este tipo de técnicas, como ha sido nuestro caso. Por otro lado los recursos tecnológicos no han supuesto en ningún momento un problema, quedando probado que incluso en colegios con nulos recursos tecnológicos y

con niños de edades tempranas, se pueden desarrollar satisfactoriamente proyectos de éste tipo.

El único aspecto negativo que hemos encontrado en cuanto al uso de esta técnica en educación infantil, es que aunque en un principio consideráramos que al promover el trabajo autónomo entre los alumnos, el uso de relatos digitales en el aula agilizaría el trabajo del maestro nos hemos dado cuenta de que no es así. En lo que respecta a nuestra experiencia, el uso de relatos digitales permite al maestro conocer al alumnado en profundidad y darse cuenta de sus necesidades, ya que trabajan codo con codo, pero no le aporta tiempo extra en el que el maestro pueda dedicarse a otras tareas, ya que debe tutorizar y guiar el proyecto en todo momento, aparte de verificar si el proceso de creación es también proceso de aprendizaje ya que si no lo es deberíamos plantear modificaciones para mejorarlo. Además al trabajar con edades tempranas hay ciertas tareas del montaje y edición del relato que los niños, ya sea por falta de habilidad o de tiempo no pueden realizar, por lo que el tutor deberá hacerlo.

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Webpages

http://www.edudemic.com/8-steps-to-great-digital-storytelling/).

http://www.skills 21.org

Annexes

1. **Annex I: Teaching instruments**

   1 Letter Irish

https://www.dropbox.com/s/hq1y6elr0w20d7i/letter%20irish.pptx

   2 Letter Spanish

https://www.dropbox.com/s/769bpziz7zwsdu5/letter%20spanish.pptx

2. Annex II: Research instruments

1 Tested items

Student	Colors	Numbers	Shapes	School	Family context	Technologies	Hobbies	Description
	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary
	Red	One	Circle	Table	Mom	Computer	Dancing	Big
	Green	Two	Square	Chair	Dad	Camera	Playing	Small
	Blue	Three	Rectangle	School	Brother	Picture	Reading	Beautiful
	Yellow	Four	Triangle	Puzzles	Sister	Video	Swimming	Ugly
	Orange	Five		Crayons	Grandpa	Play	Football	
	White	Six		Toys	Grandma	Stop	Singing	
	Black	Seven		Teacher	Dog	Switch on	Coloring	
	Purple	Eight		Friends	Cat	Switch of	Television	
		Nine		Blackboard	Fish			
		Ten						
Distractors	Brown	Eleven	Rhombus	Class	Bird	Radio	Video games	Hat
	Grey	Twenty four	Star	Bag	Tortoise	Mouse	Cycling	Sharpener

2 Irish test PPT

https://www.dropbox.com/s/9l57gxvnhvrvn1i/test%20irish.pptx

3 Spanish test PPT

https://www.dropbox.com/s/pk9dyc1tmb8cu0k/test%20spanish.pptx

3. Annex III. Results by class and student

1 Naíonra class

- Pre-test

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
L.D	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	1	One	1	Circle	1	Table	1	Mom	1	Computer	1	Dancing	1	Big	4
	Green	1	Two	1	Square	1	Chair	1	Dad	1	Camera	1	Playing	4	Small	4
	Blue	1	Three	1	Rectangle	1	School	2	Brother	2	Picture	1	Reading	4	Beautiful	4
	Yellow	1	Four	1	Triangle	1	Puzzles	1	Sister	2	Video	1	Swimming	2	Ugly	4
	Orange	1	Five	1			Crayons	4	Grandpa	1	Play	4	Football	4		
	White	1	Six	1			Toys	1	Grandma	1	Stop	1	Singing	4		
	Black	1	Seven	1			Teacher	1	Dog	1	Switch on	4	Coloring	2		
	Purple	1	Eight	1			Friends	2	Cat	1	Switch of	4	Television	1		
			Nine	1			Blackboard	1	Fish	1						
			Ten	1												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
C.M	Red	1	One	1	Circle	1	Table	4	Mom	1	Computer	4	Dancing	4	Big	4

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Green	4	Two	1	Square	1	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
Blue	1	Three	1	Rectangle	1	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
Yellow	4	Four	1	Triangle	1	Puzzles	1	Sister	4	Video	4	Swimming	4	Ugly	4
Orange	4	Five	1			Crayons	4	Grandpa	4	Play	4	Football	4		
White	4	Six	1			Toys	4	Grandma	4	Stop	4	Singing	4		
Black	4	Seven	1			Teacher	4	Dog	1	Switch on	4	Coloring	4		
Purple	4	Eight	1			Friends	4	Cat	4	Switch of	4	Television	4		
		Nine	1			Blackboard	4	Fish	1						
		Ten	1												
Distractors Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
M.H	Red	4	One	1	Circle	1	Table	1	Mom	1	Computer	1	Dancing	1	Big	4
	Green	1	Two	1	Square	1	Chair	1	Dad	1	Camera	1	Playing	4	Small	4
	Blue	4	Three	1	Rectangle	1	School	4	Brother	1	Picture	1	Reading	4	Beautiful	1
	Yellow	1	Four	1	Triangle	2	Puzzles	1	Sister	1	Video	1	Swimming	2	Ugly	4
	Orange	1	Five	1			Crayons	1	Grandpa	1	Play	1	Football	4		
	White	2	Six	1			Toys	1	Grandma	1	Stop	4	Singing	4		
	Black	2	Seven	1			Teacher	1	Dog	3	Switch on	4	Coloring	4		
	Purple	1	Eight	1			Friends	1	Cat	2	Switch of	4	Television	4		
			Nine	1			Blackboard	1	Fish	1						
			Ten	1												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student: J. M

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
Red	1	One	1	Circle	1	Table	4	Mom	1	Computer	3	Dancing	4	Big	4
Green	1	Two	1	Square	1	Chair	1	Dad	1	Camera	1	Playing	4	Small	4
Blue	1	Three	1	Rectangle	1	School	1	Brother	1	Picture	1	Reading	1	Beautiful	1
Yellow	1	Four	1	Triangle	2	Puzzles	1	Sister	2	Video	4	Swimming	4	Ugly	4
Orange	1	Five	1			Crayons	1	Grandpa	2	Play	4	Football	3		
White	4	Six	1			Toys	1	Grandma	1	Stop	1	Singing	4		
Black	3	Seven	1			Teacher	1	Dog	1	Switch on	4	Coloring	4		
Purple	1	Eight	1			Friends	4	Cat	4	Switch of	1	Television	2		
		Nine	1			Blackboard	4	Fish	4						
		Ten	1												
Distractors															
Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student: E.R

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
Red	4	One	1	Circle	1	Table	1	Mom	1	Computer	4	Dancing	4	Big	4
Green	1	Two	1	Square	4	Chair	1	Dad	1	Camera	4	Playing	4	Small	4
Blue	4	Three	1	Rectangle	4	School	1	Brother	3	Picture	4	Reading	4	Beautiful	1
Yellow	1	Four	1	Triangle	1	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
Orange	4	Five	1			Crayons	4	Grandpa	4	Play	1	Football	1		
White	4	Six	1			Toys	4	Grandma	4	Stop	4	Singing	4		
Black	4	Seven	1			Teacher	1	Dog	2	Switch on	3	Coloring	4		
Purple	3	Eight	1			Friends	4	Cat	4	Switch of	4	Television	1		
		Nine	1			Blackboard	4	Fish	4						
		Ten	1												
Distractors															
Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	

Grey	Twenty four	Star	Bag	Tortoise	Mouse	Cycling	Sharpener

- Post-test

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
L.D	Red	1	One	1	Circle	1	Table	1	Mom	1	Computer	1	Dancing	2	Big	1
	Green	1	Two	1	Square	1	Chair	1	Dad	1	Camera	1	Playing	1	Small	1
	Blue	1	Three	1	Rectangle	1	School	1	Brother	1	Picture	1	Reading	1	Beautiful	3
	Yellow	1	Four	1	Triangle	1	Puzzles	1	Sister	1	Video	1	Swimming	1	Ugly	1
	Orange	1	Five	1			Crayons	1	Grandpa	1	Play	2	Football	1		
	White	2	Six	1			Toys	1	Grandma	1	Stop	1	Singing	1		
	Black	1	Seven	1			Teacher	1	Dog	1	Switch on	3	Coloring	3		
	Purple	1	Eight	1			Friends	1	Cat	1	Switch of	1	Television	1		

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
L.D	Red	1	One	1	Circle	1	Table	1	Mom	1	Computer	1	Dancing	2	Big	2
	Green	1	Two	1	Square	1	Chair	1	Dad	1	Camera	1	Playing	1	Small	1
	Blue	1	Three	1	Rectangle	1	School	1	Brother	1	Picture	1	Reading	1	Beautiful	2
	Yellow	1	Four	1	Triangle	1	Puzzles	1	Sister	1	Video	1	Swimming	3	Ugly	1
	Orange	1	Five	1			Crayons	2	Grandpa	1	Play	2	Football	1		
	White	1	Six	1			Toys	1	Grandma	1	Stop	1	Singing	3		
	Black	1	Seven	1			Teacher	1	Dog	1	Switch on	3	Coloring	2		
	Purple	1	Eight	1			Friends	1	Cat	1	Switch of	3	Television	1		

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
			Nine	1			Blackboard	2	Fish	1						
			Ten	1												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
C.M	Red	1	One	1	Circle	1	Table	1	Mom	1	Computer	2	Dancing	4	Big	4
	Green	1	Two	1	Square	1	Chair	2	Dad	1	Camera	1	Playing	1	Small	4
	Blue	1	Three	1	Rectangle	1	School	1	Brother	4	Picture	1	Reading	4	Beautiful	4
	Yellow	4	Four	1	Triangle	2	Puzzles	3	Sister	2	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	1			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	1			Toys	3	Grandma	3	Stop	4	Singing	4		
	Black	4	Seven	1			Teacher	2	Dog	1	Switch on	4	Coloring	2		
	Purple	4	Eight	1			Friends	4	Cat	1	Switch of	4	Television	1		
			Nine	1			Blackboard	4	Fish	2						
			Ten	1												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
M.H	Red	1	One	1	Circle	1	Table	1	Mom	1	Computer	1	Dancing	1	Big	4
	Green	1	Two	1	Square	1	Chair	1	Dad	1	Camera	1	Playing	1	Small	2
	Blue	1	Three	1	Rectangle	1	School	1	Brother	2	Picture	1	Reading	4	Beautiful	1

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Yellow	1	Four	1	Triangle	1	Puzzles	1	Sister	1	Video	3	Swimming	3	Ugly	4
Orange	1	Five	1			Crayons	4	Grandpa	1	Play	1	Football	3		
White	1	Six	1			Toys	1	Grandma	1	Stop	1	Singing	1		
Black	1	Seven	1			Teacher	1	Dog	1	Switch on	4	Coloring	4		
Purple	1	Eight	1			Friends	1	Cat	1	Switch of	4	Television	1		
		Nine	1			Blackboard	2	Fish	1						
		Ten	1												
Distractors Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
J.M	Red	1	One	1	Circle	1	Table	1	Mom	1	Computer	2	Dancing	2	Big	2
	Green	1	Two	1	Square	1	Chair	1	Dad	1	Camera	1	Playing	1	Small	1
	Blue	1	Three	1	Rectangle	1	School	1	Brother	2	Picture	1	Reading	3	Beautiful	4
	Yellow	1	Four	1	Triangle	1	Puzzles	1	Sister	1	Video	4	Swimming	1	Ugly	4
	Orange	1	Five	1			Crayons	3	Grandpa	1	Play	1	Football	4		
	White	1	Six	1			Toys	1	Grandma	1	Stop	1	Singing	1		
	Black	1	Seven	1			Teacher	1	Dog	1	Switch on	4	Coloring	4		
	Purple	1	Eight	1			Friends	1	Cat	1	Switch of	4	Television	1		
			Nine	1			Blackboard	2	Fish	2						
			Ten	1												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors	Numbers	Shapes	School	Family context	Technologies	Hobbies	Description

	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
E.R	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	1	One	1	Circle	1	Table	1	Mom	1	Computer	2	Dancing	1	Big	4
	Green	1	Two	1	Square	1	Chair	1	Dad	1	Camera	1	Playing	1	Small	4
	Blue	1	Three	1	Rectangle	1	School	1	Brother	2	Picture	1	Reading	4	Beautiful	1
	Yellow	1	Four	1	Triangle	1	Puzzles	1	Sister	1	Video	4	Swimming	1	Ugly	4
	Orange	1	Five	1			Crayons	4	Grandpa	1	Play	4	Football	4		
	White	3	Six	1			Toys	1	Grandma	1	Stop	1	Singing	4		
	Black	4	Seven	1			Teacher	1	Dog	1	Switch on	4	Coloring	4		
	Purple	1	Eight	1			Friends	2	Cat	1	Switch of	4	Television	4		
			Nine	1			Blackboard	4	Fish	4						
			Ten	1												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

2 ECCE class

- Pre-test

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
M.D	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	4	One	4	Circle	4	Table	1	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	4	Playing	4	Small	4
	Blue	4	Three	1	Rectangle	4	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	4	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
A.M	Red	4	One	4	Circle	4	Table	4	Mom	4	Computer	4	Dancing	4	Big	1
	Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	4	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
R. B	Red	1	One	4	Circle	4	Table	4	Mom	1	Computer	1	Dancing	1	Big	4
	Green	4	Two	1	Square	4	Chair	4	Dad	3	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Yellow	4	Four	4	Triangle	2	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	1
Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
White	4	Six	4			Toys	4	Grandma	3	Stop	4	Singing	4		
Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
		Nine	4			Blackboard	4	Fish	4						
		Ten	4												
Distractors															
Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
L.C	Red	4	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	1	Square	1	Chair	4	Dad	3	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	1	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	1	Four	4	Triangle	4	Puzzles	1	Sister	1	Video	1	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	1		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	3		
	Black	4	Seven	4			Teacher	4	Dog	2	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	1	Television	1		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors	Numbers	Shapes	School	Family context	Technologies	Hobbies	Description

D.M

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
D.M	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	4	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	1	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	4	Puzzles	4	Sister	4	Video	3	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
S.B	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	4	One	4	Circle	4	Table	4	Mom	4	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	1	Four	4	Triangle	4	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	1		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	

	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
M.R	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	4	One	4	Circle	1	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	3
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	4	Puzzles	1	Sister	1	Video	4	Swimming	1	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	2	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
E.N	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	4	One	4	Circle	4	Table	4	Mom	4	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	1	School	4	Brother	1	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	1	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	1	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	1		
		Nine	4			Blackboard	4	Fish	4						
		Ten	2												
Distractors Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling			

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
A.S	Red	4	One	4	Circle	4	Table	4	Mom	4	Computer	4	Dancing	4	Big	1
	Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	1	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	4	Puzzles	4	Sister	4	Video	1	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	1	Switch on	4	Coloring	4		
	Purple	1	Eight	4			Friends	4	Cat	1	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

- Post-test

Student	Colors	Numbers	Shapes	School	Family context	Technologies	Hobbies	Description
	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary

M.D

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Red	4	One	4	Circle	4	Table	1	Mom	4	Computer	4	Dancing	4	Big	4
Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	4	Playing	4	Small	4
Blue	4	Three	4	Rectangle	4	School	1	Brother	4	Picture	4	Reading	4	Beautiful	4
Yellow	4	Four	3	Triangle	4	Puzzles	4	Sister	4	Video	1	Swimming	4	Ugly	4
Orange	4	Five	1			Crayons	4	Grandpa	4	Play	4	Football	4		
White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
Black	4	Seven	4			Teacher	1	Dog	1	Switch on	4	Coloring	4		
Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
		Nine	4			Blackboard	4	Fish	4						
		Ten	4												
Distractors															
Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
A.M	Red	1	One	3	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	1	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	1												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
R. B	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	1	One	4	Circle	1	Table	4	Mom	1	Computer	4	Dancing	1	Big	4
	Green	2	Two	4	Square	4	Chair	4	Dad	2	Camera	1	Playing	4	Small	4
	Blue	4	Three	1	Rectangle	4	School	1	Brother	2	Picture	2	Reading	4	Beautiful	4
	Yellow	1	Four	4	Triangle	2	Puzzles	4	Sister	1	Video	1	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	1	Eight	4			Friends	4	Cat	4	Switch of	4	Television	1		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
L.C	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	1	One	1	Circle	1	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	1	Square	4	Chair	4	Dad	3	Camera	1	Playing	4	Small	4
	Blue	4	Three	1	Rectangle	1	School	1	Brother	2	Picture	4	Reading	4	Beautiful	1
	Yellow	1	Four	1	Triangle	2	Puzzles	4	Sister	2	Video	1	Swimming	4	Ugly	4
	Orange	1	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	3	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	1	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
D.M	Red	1	One	4	Circle	2	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	3	Two	4	Square	1	Chair	1	Dad	2	Camera	1	Playing	4	Small	4
	Blue	2	Three	4	Rectangle	3	School	2	Brother	1	Picture	1	Reading	4	Beautiful	4
	Yellow	2	Four	1	Triangle	1	Puzzles	4	Sister	1	Video	1	Swimming	4	Ugly	4
	Orange	1	Five	4			Crayons	1	Grandpa	1	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	1	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	1	Switch on	4	Coloring	4		
	Purple	4	Eight	1			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
S.B	Red	4	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Yellow	4	Four	4	Triangle	1	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	1		
White	4	Six	4			Toys	1	Grandma	4	Stop	4	Singing	4		
Black	4	Seven	1			Teacher	4	Dog	4	Switch on	4	Coloring	4		
Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
		Nine	4			Blackboard	4	Fish	4						
		Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
M.R	Red	1	One	4	Circle	2	Table	1	Mom	1	Computer	4	Dancing	4	Big	4
	Green	3	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	1	Reading	4	Beautiful	4
	Yellow	1	Four	4	Triangle	4	Puzzles	4	Sister	3	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	1	Grandma	1	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	1		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors	Numbers	Shapes	School	Family context	Technologies	Hobbies	Description

E.N

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
Red	4	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
Blue	4	Three	4	Rectangle	1	School	4	Brother	2	Picture	4	Reading	4	Beautiful	4
Yellow	4	Four	1	Triangle	1	Puzzles	4	Sister	1	Video	4	Swimming	4	Ugly	4
Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	1		
White	1	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	1		
		Nine	4			Blackboard	4	Fish	4						
		Ten	2												
Distractors Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling			

A.S

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	1	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	1	Playing	4	Small	4
	Blue	4	Three	1	Rectangle	4	School	1	Brother	4	Picture	1	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	4	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	1	Switch on	4	Coloring	4		
	Purple	1	Eight	4			Friends	4	Cat	1	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish							
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	

| | Grey | | Twenty four | | Star | | Bag | | Tortoise | | Mouse | | Cycling | | Sharpener | |

- Delayed post-test

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
M.D	Red	4	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	1	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	1	Triangle	4	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	1	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	1		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
A.M	Red	4	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	1	Brother	4	Picture	1	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	1	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
R. B	Red	1	One	4	Circle	1	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	1	Rectangle	4	School	1	Brother	2	Picture	1	Reading	4	Beautiful	4
	Yellow	1	Four	1	Triangle	4	Puzzles	4	Sister	1	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	1	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors	Numbers	Shapes	School	Family context	Technologies	Hobbies	Description
	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary	Vocabulary

L.C

Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
Red	1	One	1	Circle	1	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
Green	4	Two	1	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
Blue	4	Three	1	Rectangle	1	School	1	Brother	2	Picture	1	Reading	4	Beautiful	1
Yellow	4	Four	1	Triangle	1	Puzzles	4	Sister	1	Video	4	Swimming	4	Ugly	4
Orange	1	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
Black	4	Seven	4			Teacher	1	Dog	4	Switch on	4	Coloring	4		
Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
		Nine	4			Blackboard	4	Fish	4						
		Ten	4												
Distractors															
Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
D.M	Red	1	One	4	Circle	2	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	1	Chair	4	Dad	1	Camera	1	Playing	4	Small	4
	Blue	2	Three	4	Rectangle	4	School	1	Brother	1	Picture	1	Reading	4	Beautiful	4
	Yellow	4	Four	1	Triangle	1	Puzzles	4	Sister	1	Video	4	Swimming	4	Ugly	4
	Orange	1	Five	4			Crayons	1	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	1	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	1	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
S.B	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	4	One	1	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	1	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
M.R	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
	Red	1	One	4	Circle	2	Table	1	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	4	School	4	Brother	4	Picture	1	Reading	4	Beautiful	4
	Yellow	4	Four	4	Triangle	1	Puzzles	4	Sister	1	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	1		

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
E.N	Red	4	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	1	Camera	4	Playing	4	Small	4
	Blue	4	Three	4	Rectangle	1	School	4	Brother	2	Picture	4	Reading	4	Beautiful	4
	Yellow	4	Four	1	Triangle	1	Puzzles	4	Sister	1	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	4	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	1		
			Nine	4			Blackboard	4	Fish	4						
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling			

Student	Colors		Numbers		Shapes		School		Family context		Technologies		Hobbies		Description	
	Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary		Vocabulary	
A.S	Red	1	One	4	Circle	4	Table	4	Mom	1	Computer	4	Dancing	4	Big	4
	Green	4	Two	4	Square	4	Chair	4	Dad	4	Camera	1	Playing	4	Small	4
	Blue	4	Three	1	Rectangle	4	School	1	Brother	4	Picture	1	Reading	4	Beautiful	4

	Col1		Col2		Col3		Col4		Col5		Col6		Col7		Col8	
	Yellow	4	Four	4	Triangle	4	Puzzles	4	Sister	4	Video	4	Swimming	4	Ugly	4
	Orange	4	Five	4			Crayons	4	Grandpa	4	Play	4	Football	4		
	White	4	Six	4			Toys	4	Grandma	4	Stop	4	Singing	4		
	Black	4	Seven	4			Teacher	4	Dog	1	Switch on	4	Coloring	4		
	Purple	4	Eight	4			Friends	4	Cat	4	Switch of	4	Television	4		
			Nine	4			Blackboard	4	Fish							
			Ten	4												
Distractors	Brown		Eleven		Rhombus		Class		Bird		Radio		Video games		Hat	
	Grey		Twenty four		Star		Bag		Tortoise		Mouse		Cycling		Sharpener	

4. Annex IV: Classes digital stories

1. Naíonra students digital sotory

https://www.dropbox.com/s/fqw6fo2hh0ku4k6/ni%C3%B1os%20irish.pptx

2. ECCE students digital story

https://www.dropbox.com/s/7am2bm4389hksqh/ni%C3%B1os%20spanish.pptx