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Marcus-Quinn, Ann; McGarr, Oliver

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PREDOMINANTES

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## EL USO DE LOS OBJETOS DE APRENDIZAJE REUTILIZABLES EN LA ENSEÑANZA DE LA POESÍA INGLESA: EXPLORANDO LA INFLUENCIA DE LAS PRÁCTICAS PEDAGÓGICAS PREDOMINANTES

(TEACHERS' USE OF REUSABLE LEARNING OBJECTS IN TEACHING ENGLISH POETRY: EXPLORING THE INFLUENCE OF PREVAILING PEDAGOGICAL PRACTICES)

Ann Marcus-Quinn y Oliver McGarr  
*University of Limerick, Ireland*

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## RESUMEN

A pesar de los intentos de integración de las tecnologías de la información y la comunicación (TIC) en el currículo de los sistemas de educación secundaria obligatoria en los países desarrollados, sigue detectándose su bajo nivel de uso. Una de las principales razones de esta escasa utilización es la reducida disponibilidad de software específico para este curriculum en los planes de estudio. En los últimos años la disponibilidad de herramientas de creación de alta calidad ha proporcionado oportunidades para el desarrollo, con bajo costo, de materiales curriculares altamente reutilizables. El creciente uso de repositorios educativos facilita la distribución a gran escala de estos recursos. Esto tiene el potencial de reconceptualizar el uso de las TIC en el currículo en las escuelas, en particular en el área de Humanidades.

Esta investigación tiene como objetivo diseñar software educativo específico para el currículo y explorar las formas en que se utiliza en la enseñanza de inglés por profesores de primaria en Irlanda. Se detectó que los maestros emplean el software reflejando, en gran medida, las prácticas pedagógicas existentes. A partir de esta realidad, se plantean una serie de propuestas para el desarrollo de este tipo de software y las oportunidades que presenta para

futuros desarrolladores. La investigación concluye con la presentación de un modelo conceptual preliminar de la naturaleza de los objetos de aprendizaje reutilizables (RLO) y sus implicaciones para el futuro desarrollo y el uso de dichos objetos.

## **PALABRAS CLAVE**

Objetos de aprendizaje reutilizables, prácticas educativas, tecnologías de la información y la comunicación, enseñanza de lengua inglesa.

## **ABSTRACT**

Despite the attempts to integrate ICT across the curriculum of all post-primary education systems in the developed world there remains low levels of use. One of the major reasons for this low level of use is the availability of curriculum relevant software. In recent years the availability of high quality authoring tools has provided opportunities for the low-cost development of highly reusable curricular relevant materials. The increasing use of educational repositories can now facilitate the wide-scale distribution of these resources. This has the potential to reconceptualise use of ICT across the curriculum in schools, particularly in the Humanities area.

This research aimed to design curriculum specific educational software and explore the ways in which it was used by Irish post-primary teachers in their teaching of English. The research found that teachers used the software in different ways largely mirroring existing pedagogical practices. The research raises a number of issues for the development of such tailor-made solutions and highlights opportunities for future developers. The research concludes by presenting a tentative conceptual model of the nature of Reusable Learning Objects (RLOs) use and the implications for future development and use of reusable learning objects.

## **KEY WORDS**

Reusable learning objects, educational practices, ICT, English curriculum.

## **INTRODUCTION**

The interest in ICT in education has seen a steady increase in the levels of ICT resources in Irish post-primary schools in recent years (Shiel and O'Flaherty, 2006). However, while resources have increased,

the use of the technology across the curriculum has not kept pace. There are several reasons for this limited use and most of the reasons identified appear to mirror international trends. Factors such as the limited availability of suitable content, appropriateness of courseware and its curricular coherence are among the reasons cited in numerous evaluations of ICT use in recent years (Ertmer, 1999; Ringstaff and Kelley, 2002; Baek, Jung and Kim, 2008).

In Ireland the report on the impact of the national ICT in education initiative (Schools IT 2000) highlighted that ICT use was particularly low in Humanities. Across all schools in Europe a higher proportion of teachers of Humanities tended never to use the Internet for teaching compared to teachers of other subjects (Shiel and O'Flaherty, 2006). However, the technological advancements that have been made in both society and education will inevitably influence the pupils' experience. There is a general shift in pedagogy towards more independence in learning combined with the technology to facilitate such learning. Language learners in particular can benefit enormously from the advancements given the range of authentic materials available to the learner. If ICT is integrated into the classroom in a meaningful manner it can significantly improve student learning by increasing motivation, providing authentic learning resources, providing a more visually stimulating experience, facilitating communities of practice using various communication tools and facilitating more autonomous learning (Robyler and Doering, 2000, Petter, Reich and Scheuermann, 2005).

Although the subject of English tends to have a culture that is book dominated in the Irish educational system it does lend itself to a variety of teaching strategies of a more student centred and participatory nature. The use of multimedia in the study of language and literature is hardly new. The interactive language classroom (Rivers, 1987) emphasises the use of authentic materials and engaging students in purposeful activity using available technology. Teachers have often invited students to listen carefully to the lyrics of songs and have asked them to interpret the lyrics as they would the lines of a poem however the development of RLOs has broadened possibilities.

Recognising the shortage of curriculum specific materials that could promote greater levels of ICT integration within the Irish post-primary system, this study aimed to develop Reusable Learning Objects (RLO) for use within Junior Certificate English and explore the breadth of their application within a post-primary context. The research reported here forms part of a larger study into the development of RLOs for learning. This paper focuses on the integration of the RLO in three post-primary schools and briefly

describes the nature of the teachers' use before presenting a conceptual model of use. The primary research question driving this study was: How do teachers use RLOs in the classroom?

## DEFINING RLOs and OERs

There are many definitions of digital learning objects. An early definition by Wiley (2000) states that digital learning objects are «small (relative to the size of an entire course) instructional components that can be reused a number of times in different learning contexts.» In a later paper, Caws, Friesen and Beaudoin (2006) cite Harman and Koochang's (2005) definition for learning objects used in education: «learning objects are digital resources of any kind that can be similarly combined, shared and repurposed in different educational contexts» (p. 120). For the purposes of this study a digital learning object is defined as any object which enhances learning (a photo, an MP3, a map etc.), that can be shared in digital form and delivered in various ways (Virtual Learning Environment, online repository, CD, mobile phone, MP3 player).

The concept of RLOs is as old as education itself; digital teaching and learning material provided in an electronic format enables these resources to be widely distributed, easily accessible and quickly and easily modified to suite the particular learning context. More recently the terms RLO and OER (Open Educational Resource) are frequently used interchangeably. It is important to recognise when an object is an RLO and when it is better, and more accurately, described as an OER. For the purposes of this paper the resources are referred to as RLOs as the digital learning objects are not necessarily completely copyright free.

While limited in their use at post-primary level, there has been a large increase in the number of third level courses delivered which use RLOs. The move towards flexible learning and the increasing demands on third-level institutions to meet the needs of a wider community of learners has challenged the traditional methods of delivery and called for innovative solutions. Kim and Shih (2004) note that one of the greatest challenges for educational institutions is the creation of high quality course materials (lecture notes, references, tests, etc) and that in this context the sharing and reusing of well-developed learning objects to «reduce the load on instructors, and to make them available across a wide variety of platforms» (p. 27) is critical.

In the past many educators facing the challenge of developing materials for online delivery have had to design and develop their own resources even though similar resources and programmes existed in other institutions. The

development of Open Educational Repositories such as the National Digital Learning Resources service (NDLR) in Ireland, JORUM in the UK and MERLOT in the US, has facilitated the sharing and wider distribution of such resources. Access to such resources changes the focus from developing the resources to editing and repurposing existing content to meet the particular needs of the teacher and learner (Marcus-Quinn and Clancy, 2014, Mohan, Greer and McCalla, 2003). This content is increasingly becoming more available; examples include the provision of educational materials from educational leaders such as the Massachusetts Institute of Technology (MIT) open courseware project.

However, despite the establishment of these Open Learning Repositories their success is dependent on their population with high quality resources and the complexity of the development of such resources should not be underestimated. This expertise is usually beyond the skill set of individual teachers. Taylor (1998) asserts that the growth in the field of instructional design and technology has led to a marked increase in collaboration since their development demand the deployment of an expert teaching team, with a wide range of specialist skills. He advocates «... a multi-disciplinary team approach, wherein a wide range of specialist expertise is applied to the generation of training programs» (Taylor, 1998, p. 9). These include specialists in instructional design, systems design, electronic information systems, database design, graphic design, student administration, electronic publishing and project management working alongside subject matter experts. Taylor continues to advocate this structured collaborative method of design and development of content in preference to what he terms «random acts of innovation». These random acts of innovation are the result of many individual teachers spending time and money developing similar learning objects. Therefore collective pooling of resources is needed to overcome this repetition. However, a number of issues remain which impede development of such resources (Geraghty and Marcus-Quinn, 2009). These include the following: concern about cost, lack of time, access to expertise and anxiety about the perceived quality of shared learning objects (Boyle, 2003). Concerns about copyright also hamper sharing.

Instructional designers have a range of design and development models to choose from. There are hundreds of models to design and develop training materials, but nearly all are variants of the basic ADDIE model (Kruse, 2009) and involve the systematic development with distinct steps allows for more efficient use of time and resources. The five phases of this model are: analysis, design, development, implementation and evaluation. Fig 1 is an illustration of the design and development process adhered to for this research study.

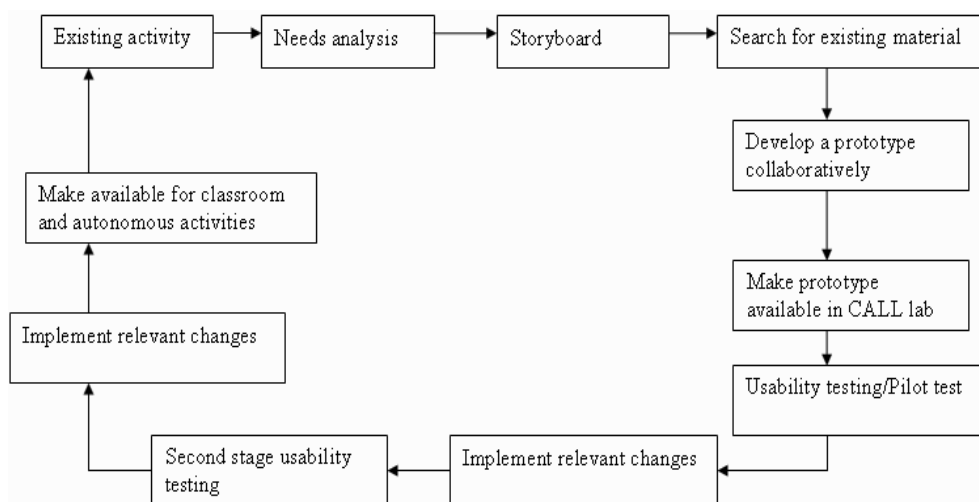


Figure 1. Design and Development process for creating learning objects (Marcus-Quinn and Geraghty, 2010)

The development of RLOs and their distribution has been widely reported however an emerging and important area of research is now shifting towards the success of these RLOs in different educational settings. One could argue that without evidence that these resources can be successfully reused across different educational settings and by different educators the justification for their development and the establishment of open educational repositories is called into question. Cognisant of this issue this research aimed to explore the use of a RLO in different post-primary schools by a number of teachers. The following section outlines the design of the resource and the research tools used in the evaluation of its use.

## METHODOLOGY

### Research design

The research did not direct the use of the RLO within the participating schools but rather was interested in how the resource was taken up and used by the participating teachers. The RLO was used by three different groups in each of the three schools over a period of six weeks. However in each setting similar research tools were employed to capture the nature of its use. As a result of this non-directive approach the study employed a case study methodology which used both quantitative and qualitative data collection methods such as observations, online surveys, focus group interviews, online discussion fora and LMS event logs. This methodology was selected

as case study approaches are particularly effective in exploratory studies where the researchers have little control over events (Bassey, 1999). The research involved three stages. The first stage involved the development of the resource in collaboration with practicing teachers. The second stage of the research involved the design and testing of the resource. The third stage of the research, which is the focus of this research paper, involved the implementation of the resource within all three participating schools.

## **Participants**

This digital resource was developed in collaboration with English teachers at post-primary level. Teachers in the greater catchment area of the research institution were invited to participate in the research study. Six teachers expressed an interest in the study and contributed to the development of the courseware. A number of the participating teachers had begun to explore alternative pedagogical approaches to the teaching of poetry but none had explored the potential of ICT. Three post-primary schools participated in the main study. The schools varied in size and type, School A being an urban 1047 student community college, School B an urban 400 student all-female voluntary secondary school and School C a 600 student mixed secondary school in a rural setting. In total there were 154 students and 13 teachers involved in this study. The teachers involved in this research, across all the schools, did not have a history of ICT use (further information on the participating schools is presented in the research findings).

## **MATERIALS**

### **The Learning Object**

This digital resource can be accessed through the National Digital Learning Resources service (NDLR). The learning object comprised seven individual lessons: six poems taken from the Junior Certificate syllabus and one lesson focusing on poetry terms (figure 2).



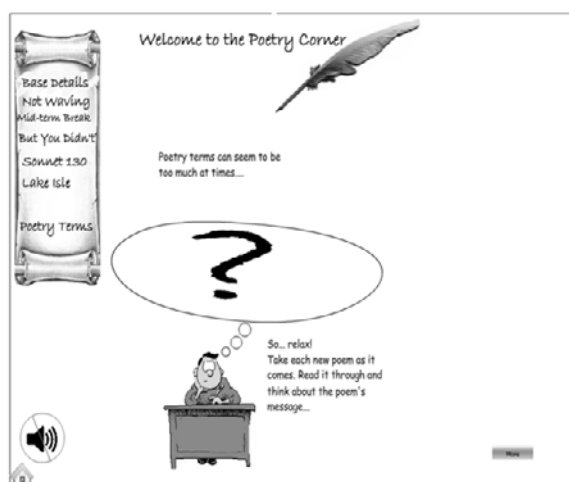


Figure 2. The Poetry Corner welcome screen

## Data collection tools

### *Interviews with Teachers*

Before and after each lesson observed the five teachers that participated in the final phase of the research were interviewed. Interviews conducted were semi-structured in format and aimed to seek the opinions of the teachers in relation to the designed resource and how it was used within the classroom. The focus of these interviews was primarily on the student use and impact of the learning object developed. The interviews varied in length depending on the topic and the time provided in each school.

### *Student group discussions*

While questionnaires were used as the main source of student feedback, the views of the students were also sought through group discussions in class. For the purposes of this study it was decided to speak to each class of students before they used the learning object in each school to get an indication of their level of interest in the initiative, their past experience of English as a subject and their past experience of using computers both in and out of school. This group approach was adopted so that group members could contribute to each other's ideas and responses and therefore more useful information could be gathered (Morgan, 1997). However, it is important to be conscious of the subjective nature when interpreting this type of data. Since the focus group is mainly a communication event it is imperative that the researcher remember that many factors can influence such interactions.

Some of the questions in the focus group interview protocol were replicated in the online student questionnaires.

### *Observation*

Almost all lessons across all the participating schools were observed over the six-week period. Observation is a key apparatus of the case study toolkit and is a widely used strategy by qualitative researchers. Malin (2003) believes that observers always precipitate some changes in participants' behaviour. Indeed, it would be impossible for a participant observer to enter a situation without affecting some aspects of behaviour. Despite these limitations the observations proved crucial in understanding the nature of the ICT use and for triangulating the teachers' and students' comments.

### *Online Student Questionnaires*

After each lesson in which the software was used online surveys were administered to the participating students using survey monkey. These were employed in order to measure student attitudes to English and specifically poetry as a subject, use of learning objects to aid schoolwork and computer use outside the classroom including games like the SIMs. Students were also asked about their use of other Web 2.0 technology, such as social networking sites. While most filled out the questionnaire individually on a number of occasions a paper-based version of the questionnaire was used as the novelty of completing the online questionnaires affected their responses.

### *Data Analysis*

In describing the case study all data sources were considered. The qualitative nature of the data required a thematic analysis. For this the Weft software package was deemed most appropriate for the data set. Weft QDA is a GUI package for the analysis of unstructured textual data such as interviews and notes from observations. Weft is particularly effective in helping to categorise the emergent themes that arose across the data; teacher interviews, student feedback and notes from the classroom observations. This qualitative data analysis tool allowed for efficient management of code-based inquiry and allowed the researcher to document the emerging trends. Following a number of readings of each transcript a number of themes were identified. The data were then coded according to these themes. In order to assess the validity of each of these themes the data was then reread.

## ETHICAL CONSIDERATIONS

The research was conducted in accordance with the institution's research ethics code of practice. Prior to conducting the study ethical approval was sought and obtained. All participants were informed of the purpose of the study and provided with an information sheet in advance of participating. Those willing to participate in the research signed a consent form and were assured of complete anonymity and confidentiality in the reporting of the data. All participants were free to withdraw from the study at any time without having to provide a reason.

## RESEARCH FINDINGS

### Teachers' use and reaction to the resource

While several issues emerged during the implementation of the RLOs within the schools the findings presented here will focus on the nature of the teachers' and students' use. Having analysed all data sources used in the study, it was evident that different types of use of the RLOs emerged. This findings section will briefly describe the types of use before providing a broader conceptual model to categorise the nature of the use observed across the schools.

In school A, a large rural secondary school, three teachers used the RLO. Use of the software varied across the cooperating teachers. The initial use of the software by two of the teachers appeared to mirror the educational practices that have been commonly reported in relation to the Irish classrooms (OECD, 1991; Mackey, 1998; Callan, 1997; Lyons *et al.*, 2003; Shiel *et al.*, 2009). In these lessons the observed teacher tended to control the students' use of the software and no student exploration or independent work was allowed. In many respects the software was being used as an electronic textbook/workbook. Within these lessons observed, where there were up to 30 students, the levels of student interest varied significantly. While some students appeared highly engaged and motivated by the novel visit to the computer room others showed low levels of interest reflected in the high levels of off-task activities on screen. Nonetheless all students completed the exercise and tasks set by the teacher. The third teacher to use the software in this school appeared to take a different approach enabling the students to explore the resources, work independently and in small groups to complete a project. Within this classroom there appeared to be high levels of student interest and engagement. The school's evaluation of the project notes that:

*«On a number of occasions we noted that some previously unmotivated students were actually very enthusiastic especially when doing their computer work and they often helped each other.»*

*«The teachers and students alike that found the blended learning environment benefited them greatly. They experience was a positive one and the teachers involved would be open to using more ICT in their teaching.»*

The second school, school B, was a large urban community college and the software was used as part of a small (eight student) learning support group. Within this more intimate classroom setting lessons tended to be more participatory and discussion based. The teacher did not use a textbook with the group and instead chose to select material and resources that best suited the needs of the group. Within this context the teacher selected elements of the software that she considered suitable and, using one computer in the small room, guided the students through elements of the software that she had selected as suitable. The teacher tended to focus on the visual elements of the software to engage the students and promote discussion. In one of the follow on interviews after an observed lesson the teacher noted:

*«It was great that the poem could be read aloud for them. They liked that. Usually I explain all the new words and it was great that they had that on the screen. Usually they find the theme difficult. 'Base Details' is the hardest one for them because there's so much in it but then they have a really strong question... We'll have to make more (RLOs for poetry).»*

School C was an all-girls private voluntary secondary school located within an affluent suburb of a city. In this school the cooperating teacher described the group of students that used the software as a mixed ability group although they appeared to have a much higher academic ability than the other participating groups. Within this school the resource was uploaded to an online learning environment and students accessed the content via a shared login created by the teacher. Students were given a high level of autonomy and were provided with weekly tasks in which the software assisted them. Students were encouraged to discuss the content, theme and style of each poem via online asynchronous discussion boards. Although participation in these discussion boards was voluntary and anonymous, many chose to sign their contributions and some initiated separate discussion threads on related issues. Overall the level of student engagement was high and the ability and willingness of the group to take ownership of their individual learning was remarkable. This level of interest was also evident in their completion of presentations on their favourite poet. When reflecting on the experience during one interview the cooperating teacher commented:

*«I would use it again but over a longer period... so maybe I'd use it once a month or once a fortnight and have some more class activity then built into it. We used it quite intensively this time over the few weeks. If we used it over a longer time I think we might get even more out of it...I think I'd have some more writing exercises in class that would work with the material that's in the resource.»*

In summarising the different uses observed it is evident that, although the same RLO was used across each site, the nature of its use differed significantly. From analysis of the use across the three schools the following section aims to sketch a broad conceptual model of use which aims to capture the spectrum of use observed.

### **Towards a conceptual model of use**

As with all learning resources educational software has a multitude of uses in the classroom context. At a basic level any educational resource can enhance the role of the teacher; whereas on the opposite end of this spectrum educational resources can have a much more significant and fundamental change to the teaching and learning environment. In essence one can see this use across a spectrum that ranges from using the projector as a 'fancy blackboard' to one that enables the students to learn in a self-directed manner, facilitated by the teacher.

However, complex digital resources bring an added dimension to this use since the teacher can choose to 'run with the software' or selectively use elements from it to meet students' specific needs. In a sense the teacher can therefore use the software as it is intended and designed or subvert and adapt elements of it to suit their needs. The diagram below provides a visual representation of this range of use and provides a helpful way of conceptualising RLO use from the range observed in this study.

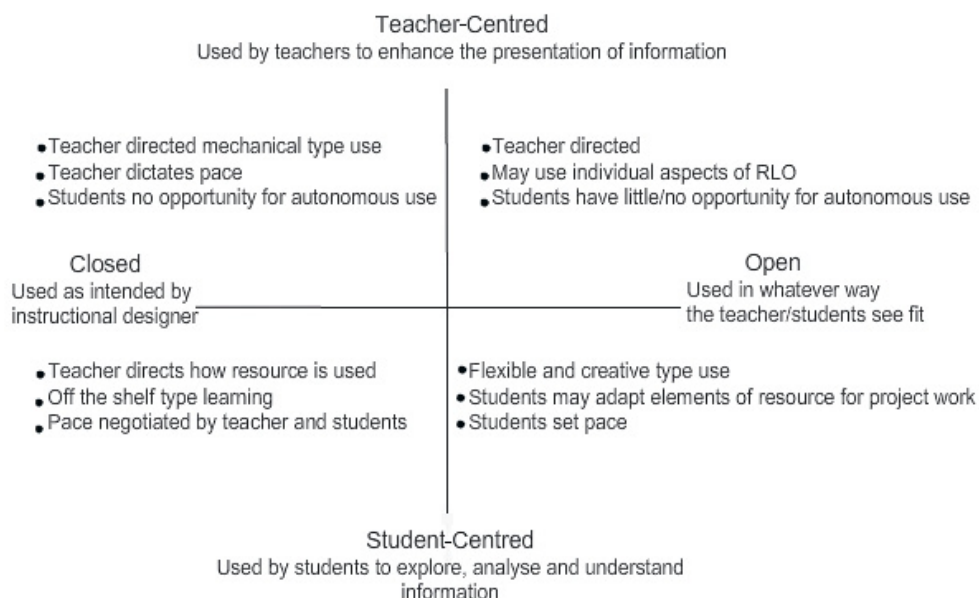


Figure 3. The use of RLOs in the classroom: a framework for analysis of teachers' practice

Therefore, how the RLO is used depends on a number of interrelated factors. It is not, as some mistakenly believe, the software that determines the pedagogical use in the classroom. It could be argued for example, that while the software designed in this study facilitated a constructivist paradigm it could also be interpreted in other ways.

Applying this framework to the participating schools in this study the commonly observed use would be described as closed teacher-centred use, located in the top left-hand corner. This use could be described as quite mechanical, being both teacher-directed and software-directed at the same time. This 'out of the box' use of the software perhaps mirrors the rigid adherence to textbooks that is a feature of Irish post-primary classrooms. Within this type of use it was observed that the student is quite passive in this learning environment. Where such use was observed the teacher navigated through all of the on screen elements before progressing to the next screen and occasionally the teacher nominated students to read aloud from the screen. In this context there is little onus on the student to take ownership of their own learning or to fully explore the breadth and potential of the resource.

There was also evidence in the lessons observed of teacher-centred use in an open and flexible way where the teacher selected elements of the software to be used. In this use the teacher may decide to draw students' atten-

tion to the audio material or a photograph of the poet but they may decide not to use other elements such as any the activity material available. As with the previous type of use, students have little or no level of opportunity for autonomous use. The student progresses through each of the screens in the manner and pace that the teacher dictates.

The lower quadrants describe more student-centred use and while this type of use was less frequently observed there was an example of this type of use. School C adopted a closed student-centred approach where the students accessed the material independently but this use was guided by a series of tasks with clearly defined outcomes. In this context the students were guided by the instructional direction of the developed resource and to a large extent were directed by it. In only one site was the most open use observed where the resource was used in an open student-centred manner. In this setting the software was used as one of many resources available to the students to complete project work. In this setting the learning environment was not dictated by the resource but was instead facilitated by it.

The prevalence of ICT resources in schools and the increasing availability of suitable digital resources have moved the ICT debate in education from talking about the potential of ICT use to focusing on the reality that ICT is being used. In this changing context, conceptualising the teachers' use of RLOs using the framework above has a number of benefits. As the framework highlights, traditional pedagogical practices are highly influential, however, viewing the teachers' existing pedagogical practice as the primary determinant of how the technology will be used in the classroom ignores the influence of the software. Simple digital resources such as images or audio files are pedagogically neutral and, like posters or images, can be used at the teacher's discretion in whatever way they see fit. More complex digital resources, where navigation and activities are imposed on the user are not necessarily pedagogically neutral; their structure, content and activities may reflect a particular educational philosophy and may make a number of assumptions about the nature of the learning environment. The complex interplay between this resource and the teacher's own beliefs and attitudes towards classroom learning can produce quite different outcomes. It has been argued that ICT is simply an amplifier of existing practices and that it is primarily used by teachers to augment the learning environment that they advocate (Cuban, 1986; 1998). The increasing complexity of digital resources and the findings from this study calls this simple analogy into question since the analogy centred on technologies that were used primarily by the teacher to enhance their presentation and delivery of information. This may have been in the form of video, television or through the use of a data projector. However, when placed in the hands of the learner and with access to digital media that facilitates inquiry and discovery-based learning, the

technology has the capacity to completely change the teaching and learning paradigm.

Notwithstanding the potential of the technology to reconceptualise the learning environment, the teacher is the primary gatekeeper in relation to ICT use in the classroom. The extent to which the educational philosophy of the digital resource is congruent with the teacher's existing practices will largely determine whether it is used or not. Recognising the central role of the teacher in determining use, successful integration attempts, such as reported in this study, have kept the teacher central to the design of the resource to ensure its success. However, this raises several issues in relation to the development of RLOs. While it is critical that the resource is developed in collaboration with practitioners, this may result in the resource cementing existing practices rather than challenging them and thus undermining the rationale for their use and potential.

RLOs are seen as a low-cost solution to the development of high-quality curricular specific material and they are particularly valuable in the Irish context where population size means that it is not commercially feasible to produce high-quality curriculum-specific materials made for the Irish market. A plan to develop a national repository for the distribution of such resources is welcomed. However, in the repurposing process care must be taken not to strip the RLO of its educational usefulness and intent. If the futures focus of the repurposing of digital resources focuses on their content and ensuring they mirror national post-primary syllabi, the value and potential impact of these resources will be limited. This is what Laurillard (2005) refers to as an alignment of traditionalism. As with many educational innovations in Irish classrooms, the prevailing influence of deeply embedded practices sustained by an examination culture has emerged as a significant issue. Proposed changes to assessment structures at post-primary level as outlined in recent NCCA reports need to be implemented to ensure that the right environment exists to fully benefit from the potential of this technology.

## CONCLUSION

The availability of high quality courseware development tools facilitates relatively low cost development of highly reusable curricular relevant materials. This has the potential to radically reconceptualise the use of ICT across the curriculum in Irish schools, particularly in the humanities area, an area that has not traditionally incorporated ICT. In this study the technology was used to address a specific issue which would not traditionally be addressed in 'off the shelf' commercial courseware products. Tailor made



solutions, such as the one addressed in this study, puts the teacher back in the centre of the design and development of learning resources enabling more effective and responsive educational solutions, which can be modified to address different levels of abilities and different learning situations. There are of course challenges and opportunities created with this type of ICT use in the classroom, particularly in relation to the nature of pupil learning, the transferability of the skills acquired, and their level of engagement with the developed product. The implications of this type of use of the technology on the informal and formal educational experiences of the learners requires further research. The study has however sketched a tentative conceptual model of the nature of RLO use and the implications for teachers practice that may guide future development and use of similar resources.

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## PROFESSIONAL PROFILE

Ann Marcus-Quinn, Lecturer in Technical Communication and Instructional Design at the University of Limerick. Her research interests include usability, instructional design and the use of ICT at post-primary level.

Oliver McGarr, Senior lecturer in education at the Department of Education and Professional Studies, University of Limerick.

Professional adress: Department of Culture and Communications  
University of Limerick  
Castletroy  
Limerick  
Ann. Marcus. Quinn@ul.ie

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