AMORES project

D1-1 Literature review indicating “the state of the art”

Introduction

This document is the first deliverable of the AMORES project and is intended to inform the consequent work of the project with a background in previous work in the field. The function of the literature review within the project relates directly to deliverable D1-2 in that it identifies some of the key questions to answer in any user needs analysis and relates directly to workpackage 2 in that it forms the background material for teacher training. It is also intended to act as a resource for dissemination activities by providing a bank of materials that can act as introductory texts for reports and articles written about the AMORES project. Although the literature review summarises the knowledge at the start of the project and is delivered as an output of workpackage 1 the intention is that it will be expanded upon as more literature is reviewed and more complementary projects are engaged as part of project activities.

The literature review contains the following sections:

* The identification of relevant pedagogical theories to inform the work of the project
* Review of previous work that researches the use of learner-generated content as a method to encourage learning and teaching. This was expanded to include additional research on the use of video as a consequence of the outputs of the workshop conducted with teachers (D2-1) in which video was focused on as the most useful and practicable of the potential technologies to employ.
* Review of previous work on the use of social media as a communication tool in teaching and learning. One of the elements that came out of the first draft of the literature review is that learner-generated content is not only a valuable learning activity in itself, but it also contributes to the learning experience by providing a focus for social activity. Since the AMORES project aims to foster online collaborative international activity between schools, the role of social media in this was considered to be essential.
* A look at the value of literature education in the personal and academic development of learners. From the initial project writing stages, the importance of generating a love of literature in young people was held to be self-evident. Identifying research that objectively supports this implicit assumption is important for validating the importance of the work of the project.

Individual technologies were not reviewed as these were considered to be of secondary importance to the pedagogical aspects of the project. Furthermore, the specific technologies that could be listed would become immediately out of date. Instead, specific technologies are mentioned in relation to actual uses to which they are put in different case studies. A fuller description of the technologies used in the project is covered in D2-2 “Technologies selection report”.

Theoretical perspectives

The use of technology within the AMORES project builds on two principles of education. One of these is that by encouraging students to create digital artefacts (or e-artefacts), the learning of the students will be advanced. This is a principle known as learning through design (Kafai and Resnick, 2011; 4). The other way in which technology is used to support learning is through encouraging students to communicate with each other using social media, and so jointly develop knowledge. This is a technique referred to as collaborative learning which has been defined as “a situation in which particular forms of interaction among people are expected to occur, which would trigger learning mechanisms” (Dillenbourg, 1999; 5). Walton and Hepworth (2011) identified positive changes in cognition associated with experiencing online collaborative learning and put forward a model for a blended teaching and learning intervention (a mix of online and face-to-face approaches) that engages the learner and leads to higher order thinking. In a further paper (Hepworth & Walton, 2013) they went on to show that students who were exposed to online collaborative learning demonstrated a greater degree of learning in their assessed work. In a parallel study Cleland and Walton (2012) confirmed that online collaborative learning has a statistically significant positive effect on learning.

Learning through design is often described as an exemplar of constructivist theory in that “activities involving designing, making or programming – in short designing – provide a rich context for learning” through the process in which learners construct meaning through the act of design (Kafai and Resnick, 2011; 4). Collaborative learning is described by social constructivism as a means by which meaning is constructed jointly by a community (Conole et al, 2005; 11). Lewis, Pea and Rosen (2010; 7) summarise social constructivism as the process in which “By together questioning texts and situations, conceptualizing problems, designing solutions, building artifacts, redesigning, re-conceptualizing and reinterpreting, people generate forms of public knowledge that in turn provide conceptual and relational support for further interaction and learning”.

Constructivism and social constructivism come together in the concept of constructionism, a term coined by Seymour Papert who both “contended that students engage in deep learning when they research, design and construct an artefact or model as a representation of their knowledge” and also that “constructionism links personal and social influences on learning because the artefact produced is an output of the interaction of personal and social knowledge construction that needs to be meaningful and made public” (Hoban, Nielsen and Carceller , 2010; 434). In short, meaning is created by the learner, both with interaction with an artefact and with other learners.

Constructionism draws on two perspectives on learning; predominantly this is the cognitivist perspective, but also it draws on a situative perspective too. The cognitivist perspective “views learning as transformations in internal cognitive structures. Pedagogically, it is characterised by processing and transmitting information through communication, explanation, recombination, contrast, inference and problem solving” (Conole et al, 2005, 11). The situative perspective takes the view that learning is a social participative activity, and is embedded in a community and a pre-existing dynamic of personal relationships and shared inter-subjective knowledge (Conole et al, 2005; 11).

Furthermore, learning through constructionism (or indeed any experiential learning activity) can be structured to enable learners to maximise the effectiveness of learning activities by sequencing them so that the act of creating an artefact is followed by feedback and then learning from this feedback in a reiterative cycle. One such learning cycle is the Kolb learning cycle (fig. 1) (Kolb and Kolb, 2009; 299) in which “immediate or *concrete experiences* are the basis for observations and *reflections*. These reflections are assimilated and distilled into *abstract concepts* from which new implications for action can be drawn. These implications can be *actively tested* and serve as guides in creating new experiences” (Kolb and Kolb, 2005, 298 – 299).

|  |  |
| --- | --- |
|  | Figure 1. The Kolb Learning Cycle |

The Kolb cycle is closely based on the Lewinian experiential learning model, which drew directly on the engineering concept of feedback (Kolb, 1984, 21) (fig. 2).

|  |  |
| --- | --- |
|  | Fig. 2 The Lewinian experiential learning cycle |

These cycles are not only iterative, they are reflective (aware of the impact of the intervention) and reflexive (taking into account the results of the intervention and modifying the next cycle accordingly [Kolb and Kolb, 2009, 298]). Each iteration is intended to build in complexity, increasing the range and depth of the learners’ understanding. Indeed, Kolb and Kolb argue that by making the learner aware of the nature of these activities and the types of learning that are occurring at each stage, that meta-cognition (i.e. learning about learning) can occur (Kolb and Kolb, 2009, 303).

The activities can also be structured in terms of the various degrees of complexity that are being set at each stage. A commonly used model for structuring complexity is Bloom’s taxonomy. The original taxonomy was published in 1956 and consisted of six levels of learning, which were presumed to be hierarchical, i.e. each lower layer was needed to be achieved before the next layer was undertaken (Krathwohl, 2002, 213 – 213). These levels were: Knowledge (at the “lower order thinking skills” end), Comprehension, Application, Analysis, Synthesis, and Evaluation (at the “higher order thinking skills” end). Bloom’s taxonomy was extensively revised in 2002 to become a 2-dimensional progression consisting of (along one axis) a similar set of characteristics; that is

“Remembering (at the lower level): Recognising, listing, describing, identifying, retrieving, naming, locating, finding

Understanding ; Interpreting, Summarising, inferring, paraphrasing, classifying, comparing, explaining, exemplifying

Applying; Implementing, carrying out, using, executing

Analysing; Comparing, organising, deconstructing, Attributing, outlining, finding, structuring, integrating

Evaluating; Checking, hypothesising, critiquing, Experimenting, judging, testing, Detecting, Monitoring

Creating (at the highest level): including designing, constructing, planning, producing, inventing, devising, making”

(Churches, 2008; 2 after Krathwohl, 2002; 215). Across the other axis, these levels are split into Factual Knowledge, Conceptual Knowledge, Procedural Knowledge and Metacognitive Knowledge.

The practicality of Bloom’s taxonomy was, however, largely been the inclusion of a set of verbs with to exemplify each level. Starting a sentence with one of Bloom’s verbs is a simple but effective means to set a learning task at a certain order of thinking. As part of the modernisation of the taxonomy, the revised taxonomy has also been embellished with a set of verbs to exemplify each of its levels, though these are not broken down into the separate knowledge types. An example of the range of verbs with which to describe learning activities at each level is shown in figure 3 (Churches, 2008, 3).

|  |  |
| --- | --- |
|  | Figure 3. The 21st century version of Bloom’s taxonomy. |

The relevance of the revised taxonomy for the AMORES project is that it places creation – the central theme of the project – as the highest order learning activity.

In designing learning activities therefore, two aspects need to be taken into account: at what point in the Lewin experiential learning cycle the activity sits, and at what level in the revised Bloom’s taxonomy does the activity take place. If both were to be followed dogmatically then early cycles would focus on remembering, but then build through understanding etc and so on up to creation, but the reality is that learning exists on several levels at once.

What both models omit, however, is to take into account the role that collaboration provides in accentuating and deepening the learning process – thus we might see a third progression, that of individual to cooperative to collaborative working. This aspect has been looked at extensively by Etienne Wenger, who explores the role of communities in learning through his communities of practice model.

Wenger’s theories of social learning are linked to a range of other functions (Wenger, 1998; 12) see fig 4. Of most relevance to the AMORES project is that this social learning is intrinsically linked to artefact. For Wenger, artefacts mediate this social form of learning through a process of reification, which he defines as ‘the process of giving form to our experience by producing objects that congeal this experience into “thingness”’. Once an idea is given form in this way it “then becomes a focus for the negotiation of meaning”. Wenger also notes that reification is interlinked with participation (1998; 62-63); participation helps reify the concepts further, reification facilitates the participation in the practice.

|  |  |
| --- | --- |
|  | Figure 4. The other theoretical constructs to which Wenger’s social theories of learning are linked (Childs, 2014; 78). |

Thus when we examine the learning taking place through the creation of an artefact we would expect to see the design as a trigger for a set of learning opportunities as the learner interacts with the object. We would also expect to see learning events happen as the learners interact with each other in its creation. This knowledge will both be a development of their understanding of the subject discipline but also embedded and influenced by the existing culture and dynamics of the connections between the learners.

Conversely, in the social media activities undertaken by the learners, these will be situated in their experience and their culture (both online and offline), but also will build on their pre-existing knowledge, to form a new, more developed understanding of the subject discipline.

In summary then, we can approximate the activities and theories underpinning their creation in table 1. Note that this is a simplification; there is considerable overlap between the theoretical approaches and perspectives, and as the activities take place there will be overlap between the process of design of artefacts (which will contain social dialogue around their creation) and the activities in social media (which will doubtless involve the sharing of digital artefacts). Previous studies therefore may actually explore very similar types of activity, but will take a different perspective, and focus on different aspects of the activity, for example, activities that involve the creation of digital artefacts often focus on the social activity around the artefact, rather than the learning that takes place directly by the design of the artefact.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Activity** | **Theoretical approach for project** | **Theoretical approach for specific activity** | **Dominant perspective that informs analysis** | **Main form of evidence for learning** |
| Creation of e-artefacts | Constructionism | Constructivism | Cognitivist | Digital artefacts |
| Collaboration through social media | Social constructivism | Situative | Records of interaction |

Creation of digital artefacts for learning

There are a range of technologies with which students can create artefacts, however, the outputs of the workshop (D2-1) and technology report (D2-2) indicated that by far the most preferable technology for the teachers to use with their students within the AMORES project was the creation of video. For that reason, previous usage of video is focused upon here.

Claire Allam described work carried out with undergraduates at the University of Sheffield in which she found that using the creation of video as a learning tool enabled students to engage creatively with the subject increased their motivation and enhanced their understanding (2007; 131). The reasons for this are numerous, the ones which Allam identified are:

* The novelty value; video-making is a very different form of activity than most students are familiar with in class.
* Personal engagement; as one student said “it does give you more of a personal connection with the text if you can take it away and make it yours” (Allam, 2007; 132).
* The creative act builds upon many other types of learning; as can be seen in the revised Bloom’s taxonomy above, creating contains the highest order thinking skills. To achieve this level of thinking depends upon all of the thinking skills that are of a lower order, thus in order to create, the creator must first synthesis and analyse.
* The creative act also requires students to use skills in collaborative working, organisation, communication and negotiation.
* Creating also requires bringing together divergent thinking skills (openness, subjectivity, intuition, emotion and imagination) and convergent thinking skills (logic, reasoning, analysis, objectivity and judgment) with respect to the subject domain they are making the video about. These are linked via the practical skills that need to be learnt and exercised in order to make the video. (Allam, 2007; 133)

Allam also encouraged the students to reflect on the process through a learning journal and portfolio and these were used as the main assessed part of the module. Students were also able to feed back on each others’ work through a final film show of all of the videos (Allam, 2007; 134).

The barrier with using video in education is predominantly the resource implication, both in terms of the students’ time (Allam 2007; 133) and from the teacher and department (Allam, 2007; 135). Students needed to know some of the basics of film-making (such as the correct shots to take to tell a story, and to consider the final structure before they began shooting) and needed recourse to the teacher in order to check their progress. For the teacher, balancing the degree of involvement was problematic, too little and the students would struggle, too much and they would lose ownership over the process (Allam 2007; 132).

This experience of deeper learning was also found by Dale and Povey (2009) in which students were asked to create podcasts. Not only did the process of re-presenting information require them to understand the subject matter of the podcasts in greater depth, engaging both with theoretical perspectives and read further around the subject, the creative and imaginative aspects of the task gave them the motivation to undertake these tasks.

**The role of social media in developing artefacts**

*Social media in education*

Social media all provide platforms for communication and interaction, but do so in a variety of different ways. McLoughlin and Lee claim the affordances of social media platforms as:

Connectivity and social rapport: Social networking sites like MySpace, Facebook and Friendster attract and support networks of people and facilitate connections between them…. people acquire both social and communicative skills, and at the same time become engaged in the participatory culture of Web 2.0. In these spaces, youth engage in informal learning, and creative, expressive forms of behaviour and identity seeking, while developing a range of digital literacies. (McLoughlin and Lee, 2007; 667).

Collaborative information discovery and sharing: Data sharing is enabled through a range of software applications, and experts and novices alike can make their work available to the rest of the online world, for example through their personal and group blogs. Social bookmarking tools such as del.icio.us, Furl and Digg allow people to build up collections of web resources or bookmarks (McLoughlin and Lee, 2007; 667)

Content creation: Web 2.0 emphasises the pre-eminence of content creation over content consumption. Anyone can create, assemble, organise and share content to meet their own needs and those of others. … Wikis enable teams and individuals to work together to generate new knowledge through an open editing and review structure. (McLoughlin and Lee, 2007; 667)

Knowledge and information aggregation and content modification: The massive uptake of Really Simple Syndication (RSS), as well as related technologies such as podcasting and vodcasting… is indicative of a move to collecting material from many sources and using it for personal needs. The content can be remixed and reformulated (the concept of a mashup). McLoughlin and Lee, 2007; 667)

However, these claims are contested. It is true that artefacts do play a central role in social media. Facebook, SnapChat, Instagram, Tumblr etc. all have images as a central part of communication. Lewis, Pea and Rosen (2010; 2 – 3), for example, concur that there is identity creation, and add community creation, around the sharing of these artefacts stating that “the artifacts we manifest in the world elicit new forms of social and material interaction that in turn give birth to new artifacts, conditions and consciousnesses. Around these we in turn organize social and productive life and find new aspects of who we are as humans – the makers and users of worlds of mediating symbols)”.

The effectiveness of these platforms in supporting communication, community and identity are enhanced because artefacts are not just shared, but are commented on, and annotated, and further shared, and additionally, this is done rapidly and continuously. Narratives are created through comments on posts and become intertwined and develop while participants are synchronously logged onto the site. This is not only sharing, this is appropriating the images in order to represent a digital identity and by sharing creating a communal identity (Lewis, Pea and Rosen, 2010; 5). Furthermore, this is not only fast, it is frequent, participants engage regularly and routinely in this activity, with their attention directed towards either the most recent or the most popular posts. Thus not only is it true that “Participation is linearly routinized in a timescale of immediacy” (Lewis, Pea and Rosen, 2010; 7) participation is also rewarded through the assignment of popularity (the conferring of “likes”) and status.

Scardamalia (2004) and Colasante (2010) both show how an annotation tool can encourage this participation an how an artefact, once constructed can lead to further engagement and learning. In these studies a Media Annotation Tool (or MAT) is used to enable learners to add meaning to the video artefacts they see, to provide what they refer to as artefact-centred learning (Colasante, 2010; 212). The advantages of this tool is that the discussion around the artefact remains centred on the artefact, overcoming the fragmentation that learners report as being dissatisfied with in other discussion-based platforms (Colasante, 2010; 213). Artefact-centred learning therefore provides coherence and convergence for collaborative learning. By placing these discussions actually on the artefact, the MAT also enables the learning to be placed in context, removing the need for explanatory material and reducing the potential for ambiguity (Colasante, 2010; 213). Drawing further on the concept of reification described above, the annotations made can also provide a location for making abstract ideas around an image or sequence more concrete, by enabling elements to be textually tagged, negotiated and renegotiated. Artefact-centred learning therefore:

* Provides a focused location for discussion
* Provides a context for learning, providing required additional information in situ
* Enables reification of abstract ideas

Scardamalia discusses a similar process, but one in which information is linked in a variety of postings to a Computer Supported Intentional Learning Environments, or knowledge forum, in which objects in the form of text files, images and videos are posted and linked in a graphical form. This structure enables learning to

* Be created collaboratively
* Provide different perspectives on information simultaneously
* Enable people to participate in different ways, using the medium which they prefer
* Showed explicitly the interconnections between ideas, (Scardamalia, 2004; 4)

Having these artefacts viewable within the same environment and added to by others enabled further steps to learning in that they:

* Facilitated a common discourse
* Could be annotated by individuals or groups
* Led to synthesis and emergent ideas (Scardamalia, 2004; 4-6)
* Facilitated a “rising above” discourse, in which competing ideas could be merged i.e. “the most constructive way of dealing with divergent or opposing ideas is not to decide on a winner or a compromise position but rather to create a new idea that preserves the value of the competing ideas while “rising above” their incompatibilities.” (Scardamalia, 2004; 7)

Most importantly, however, it can be argued that social media are of value in fostering the degrees of trust that are essential in online collaborations. Research by Soetanto et al (2014) indicates that the key difference in the experience of students working offline as opposed to online is that if trust within a collaboration begins to fail, offline teams have mechanisms to re-establish trust, whereas online teams do not. Yet evidence dating back to computer-mediated communication in the 1990s indicates that creating social connections within an online environment can support trust. Rourke et al, 1999 gives examples of studies in establishing trust in online interactions that “27% of the total message content consisted of expressions of feeling, self introductions, jokes, compliments, greetings, and closures” and “the more one discloses personal information, the more others will reciprocate, and the more individuals know about each other the more likely they are to establish trust, seek support, and thus find satisfaction”.

Social media can therefore support teamwork online by providing social presence, defined by Kawachi (2013; 21) as “a sense of camaraderie conveyed through mediated communications to others through sharing personal anecdotes, pictures, videos, audio and other media; connections suggesting shared interests, a fashionable lifestyle and friendliness.” Student engagement is encouraged by feeling more part of a community and this active participation has been shown to lead to achieving higher quality learning; without student engagement online activity becomes de-contextualised. Student engagement, context and above all the trust that comes from sharing of personal details, and establishing of social links is therefore highly important for the success of collaborative learning tasks (Kawachi, 2013, 28).

This is particularly important for introverted students. Voorn and Kommers (2013). In this study, it was found that introverted students, who tend to state that social skills are less important for collaboration than do extrovert students, found their self esteem increased through the use of social media to interact online when collaborating (Voorn and Kommers, 2013, 71). As Kawachi states:

The shy introvert student can look through webpages of other students, and then post up tentative own personal information; this-or-that photograph, these ‘likes’ and those music favourites. The personal data can be posted up gradually to test out through trial-and-error to explore how acceptable the data are to others (and immediately withdrawn if sensed to be outside the social norms of the group). Step-by-step in small safe steps, the introvert can thereby build up a socially-accepted online persona, through which she can interact with others online. In this way, the social media website can offer to the self-conscious outsider a mechanism towards

becoming accepted by the community online. Once this has been achieved the group can move on together as a community later to engage group collaborative learning tasks (Kawachi, 2013; 28).

The social media application that Lewis, Pea and Rosen found that fulfilled the criteria they list in the section above was an application called Mobltz that uses ‘mobile media blitz’ to create artefacts (2010; 10). Each “moblt” is an image, text, piece of audio of combination of these, and each element is shared with the community of learners and added to, adapted and re-ordered to make short sequences (Lewis, Pea and Rosen, 2010; 12). The key elements to the interactions were that they

1. All take place using a mobile device
2. Referential in that the conversations are anchored in specific elements and the their inter-relationships and
3. Did not privilege narrative linear stories over more fragmented and casual communications
4. Could be remixed by any user in a multitude of ways
5. Enabled the shared online narratives to snowball
6. Were embedded in a web-based environment. (Lewis, Pea and Rosen, 2010, 11)

A “Slowmation” (abbreviated from “Slow Animation”) is a digital artefact consisting of a stop-motion animation that played in slow motion at 2 frames/second. These artefacts were created by preservice teachers at university to explain a science concept (Hoban, Nielsen and Carceller, 2010; 438).

Neither of these studies include an analysis of the impact, simply recount the activities and the technologies used in the projects.

**Sheherazade, 1001 stories for adult learning, Theoretical background for methodology: summary**

http://www.sheherazade.eu/sites/default/files/deliverable/d3/deliverable3\_EN.pdf

**Issues in social media**

Where McLoughlin and Lee’s claims are problematic is in the idea that this automatically leads to digital literacy, and automatically encourages creation of digital content, as many users participate simply by appropriating pre-existing content, or commenting on others’ uploads, or solely (or at least predominantly) lurking. It should particularly be noted, that none of the above examples enable the co-creation of content; the closest they are able to provide to collaborative production is the uploading and subsequent downloading and reversioning of content (in a constant remixing).

The constraint of these platforms in supporting construction of content is highlighted by Lewis, Pea and Rosen, and from the perspective of a teacher encouraging learning through constructionism, the fluency that users have with appropriating and re-presenting artefacts is far from a literacy with creation.

Harnessing such dynamic network interactions for learning is challenging in part … because the ‘upload’ mode of media production is so primitive from a creative meaning making perspective. Although these sites are certainly dynamic, those who study human interaction cannot help but notice that the forms of communication available are for the most part one-dimensional, based in collective circulation of artifacts and individual meaning-making, rather than the coconstruction of meaning…. Participation is tightly constrained, and its limited forms give rise to further [limited] expectations among users for what kind of contributions even count as ‘participation’. (Lewis, Pea and Rosen, 2010; 6)

The importance of this concept of dynamism in content creation is echoed by Bull et al (2008; 103) define dynamic media as being fluid in “their technical characteristics i.e. media that is (sic) interactive, multilayered, and mobile” – as well as cultural characteristics - media that is (sic) remixable, sharable, and used as a springboard for social interactions.”

Participation through the conferring of likes is “‘participatory’ in a confined sense” but alone it is not sufficient to the learning opportunities that constitute constructionist learning. As Lewis, Pea and Rosen (2010; 7-8) state:

Circulating a commodity does not make meaning; people need to be able to create together, to generate narrative, to share contesting ideas. The power of social media for learning lies not in its ability to offer individual expression anytime anywhere so much as in its yet-to-be-realized potential to foster collaborations, on a scale and in tighter time cycles than ever seen before.

Ackerman (2011; 30) notes that young people are able to adjust their speech when talking to others and to modify instructions to match the perceived abilities of the people with whom they are communicating. By the age of four, children are aware that others can have a different viewpoint from their own. What is more difficult is to form an understanding that “viewpoints are lenses and that different lenses transform reality in specific ways” and so how another’s perspective informs the way their mind works (ibid).

**The role of learning literature in education**

The National Literacy Trust (Clark & Rumbold,) identified that being able to read for pleasure is one of the greatest indicators that someone can go on to acquire knowledge and understanding for themselves and be able to think about thinking. According to Clark and Rumbold (p.8) reading for pleasure can also increase:

*General knowledge; better understanding of other cultures; community participation; a greater insight into human nature and decision-making.*

Fish’s theory of popular texts focuses on the way a reader reacts to the text, he posits that the reader’s reaction is more important than the text itself. A reader will interpret the text through the filter of his or her own experience. The reader is seen to be actively imagining and constructing the text as they read along, building up a picture of how the text would end. Fish (1980) believed that there was a psychological benefit that could be gained from reading ‘popular’ novels. The ‘popular’ novels provided escapism for readers but it was escapism within the parameters of the reader’s own life – because the reader was interpreting the text through his or her own experiences.

Engaging with a short piece of functional text and engaging with a longer piece of nuanced text actually needs different skills (Brooks, et al., 2007). Extended reading is defined as a text that provides sustained reading with a number of pages that cannot all be read or understood in one sitting in a class (Keinhert, 2013).

Whilst investigating extended reading skills, it is necessary to compare and contrast the broad theoretical approaches that can be taken in learning to read. (Tracey & Morrow, 2012):

* the traditional view;
* the cognitive view;
* the metacognitive view.

The traditional view (Dole et al., 1991) of reading is also called the bottom up view (Nunan, 1991). This view of reading is that there is a sequence of skills the reader needs to acquire before they can achieve full comprehension.

Leading on from this is the cognitive view of reading, which was developed as a counterbalance to the traditional view (Dole et al., 1991); the theory puts forward that this model of reading is more concerned with interacting with text and reading contextually. Fluent readers do not need to read all of the words; they can contextually understand what word comes next by understanding the sense of the text.

The third view is the metacognitive view which is a synthesis of the two other views together but impresses upon us how much the reader is in control of understanding the text (metacognition). Flavell (1976) and Brown (1978) were the instigators of metacognition as an extended reading technique for children.

Tracey and Morrow (2012) define metacognition as a theory that emphasises reader interaction with the text to understand it and to make sure that it has been understood - in essence to make the reader more aware of their own thinking (thinking about thinking [Flavell, 1979, 906]) whilst reading. Tracey and Morrow state that fluent readers use metacognitive strategies and readers who are not fluent have less developed metacognitive skills. It is this metacognition that is needed in the Functional English classroom allied with interacting with extended pieces of text to give the learners all round reading and understanding skills that they can then use in any situation.

Conclusions

The aims of the AMORES project are evidently built on sound theoretical principles. Constructionist approaches stand at the top of the revised Bloom’s taxonomy; that is *making things* incorporates all of the learning skills that comprise the thinking skills of lower ranks in the taxonomy.

Offering the opportunity for students to make things, not only provides them with novelty, it also offers the opportunity for reification, a focus on something to act as a medium for making abstract ideas concrete and negotiating their meeting collaboratively.

If the activities are structured effectively, through the creation process the learner can be taken through all of the stages of the Lewin/Kolb learning cycle. Creation of artefacts based on literature makes demands on the students to read around, explore more deeply and more conceptually, but simultaneously, the opportunity to create and use their imagination, provides the motivation to conduct these more complex tasks.

Creatively engaging with the curriculum also ensure that both the intuitive, open-ended thought processes and the closed-ended subject specific learning tasks are included, based around the development of the artefact (requiring a set of practical skills too). By offering flexibility in how the artefacts are created, students with differing skills and preferences can be engaged. Furthermore, if this learning process is made explicit, by asking the learner to reflect on their learning, and the creation process, then the metacognitive aspects of learning, particularly important when literacy and literature is being considered, can be brought into the learning mix.

Constructionism is not only about making artefacts, however, it is about creating them as a social activity. By locating the creation of these artefacts within a social media platform, this co-creation can be facilitated. Co-creation is a difficult task when conducted offline, but online is even more problematic, due to the issues with building and maintaining trust. With effective trust-building tasks conducted within the social media platform, then the learners can have the opportunity to develop the degree of social presence necessary for effective engagement and hence collaboration.

Reflection on the quality of literature to date indicates a limited range of published material on these aspects however, and what is produced tends to be focused on STEM subjects (unsurprisingly as it within these subjects that constructionism and learning cycles began), at an undergraduate level (possibly as this is the environment in which the majority of academics work) and also tend towards more of the descriptive rather than the analytical. A project which focuses on literature, at the school level, and attempts to identify patterns of learning, best practice and guidance for implementing learning using learner-generated content therefore appears to be long overdue.

Within the later stages of the project, the following issues arise from the literature which will be taken forward to later activities.

* The artefacts created need to be in a medium that students will find engaging and creative.
* The environment in which the learners create their artefacts needs to have a strong social element and to facilitate annotating, remixing and mashing up of artefacts.
* Learning activities need to scaffold the acquisition of practical skills, managing the production of artefacts and incorporating the subject specific learning.
* Social activities need to be scaffolded to develop social presence and trust, while simultaneously safeguarding the students.
* Learning activities need to engage with reflection to an extent appropriate to the age of the students to realise the potential for metacognitive learning.

These conclusions will lead into the following activities in workpackage 2

D2-2 the technology selection report

D2-3 the syllabus for teacher training

D2-4 the learning materials for teacher training

D2-5 the teacher training

This literature review will also provide materials for the dissemination process.

**References**

Allam, C. (2007) “Using filmmaking to teach students about Shakespeare, urban regeneration and other stuff” in Childs, M., Cuttle, M. and Riley, K. (eds.) DIVERSE Conference Proceedings 2005 & 2006, Glasgow: Glasgow Caledonian University

Brooks, G. et al. (2007) Effective learning and teaching of reading. Cork: Crown Copyright.

Brown, A. (1978) Knowing when, where and how to remember. New Jersey: Erlbaum.

Bull, G., Thompson, A., Searson, M., Garofalo, J., Park, J., Young, C., & Lee, J (2008). Connecting informal and formal learning: Experiences in the age of participatory media. Contemporary Issues in Technology and Teacher Education, 8(2), 100-107.

Childs, M. (2014) “Two models to conceptualize space” in Kuksa, I. and Childs, M. (2014) *Making Sense of Space: The Design and Experience of Virtual Spaces as a Tool for Communication* , Chandos, UK:Oxford, 69 – 80.

Churches, A. (2008) Bloom's Taxonomy Blooms Digitally, Tech & Learning, 4th Jan, 2008 http://www.techlearning.com/studies-in-ed-tech/0020/blooms-taxonomy-blooms-digitally/44988

Clark, C. & Rumbold, K. (2006) *Reading for Pleasure: A research overview,* London: National Literacy Trust.

Colasante, M. (2010) “Future-focused learning via online anchored discussion, connecting learners with digital artefacts, other learners, and teachers”, Proceedings ascilite Sydney 2010, 211 - 221

Conole, G., Littlejohn, A., Falconer, I. and Jeffery, A. (2005) Pedagogical review of learning activities and use cases, LADIE project report, JISC; August 2005

Dale, C. and Povey, G. (2009) An evaluation of learner-generated content and podcasting, *Journal of Hospitality, Leisure, Sport and Tourism Education*, **8** (1)

Dillenbourg P. (1999) What do you mean by collaborative learning?. In P. Dillenbourg (Ed) Collaborative-learning: Cognitive and Computational Approaches. (pp.1-19). Oxford: Elsevier

Dole, J. et al. (1991). Moving from the old to the new: research on reading comprehension instruction. In Review of Educational Research p.61

Fish, S. (1980) *Is there a text in this class?* Harvard: Harvard University Press.

Flavell, J. (1976) Metacognitive aspects of problem solving. New Jersey: Erlbaum.

Hoban,G., Nielsen, W. & Carceller, C. (2010) Articulating constructionism: Learning science though designing and making “slowmations” (student-generated animations) **,** Proceedings ascilite Sydney 2010: 433 - 443

Kafai, Y.B and Resnick, M. (2011) Introduction to Constructionism in Y.B. Kafai and M. Resnick (eds.) *Constructionism in Practice: Designing, Thinking and Learning in a Digital World*, UK: New York, Routledge pp. 1 – 8

Kawachi, P. (2013) Online social presence and its correlation with learning, *Int. J. Social Media and Interactive Learning Environments*, Vol. 1, No. 1, 2013, 19 - 31

Keinhert, P. (2013) What is Extended Text? [Online] Available from: <http://fc.dekalb.k12.ga.us/~Paula_Keinert/?OpenItemURL=S1A1784A0>. [Accessed 17th September 2013].

Kolb, A.Y. and Kolb, D.A. (2009) The Learning Way: Meta-cognitive Aspects of Experiential Learning, *Simulation Gaming* 2009; 40; 297 – 327

Kolb, D.A. (1984) Experiential learning: experience as the source of learning and development Englewood Cliffs, NJ: Prentice Hall.

Krathwohl, D.R. (2002) A Revision of **Bloom's** Taxonomy: An Overview, *Theory into Practice*, Volume 41, Number 4, Autumn 2002,

Lewis, S., Pea, R. and Rosen, J. (2010) Special issue: Digitize and transfer, *Social Science Information*, Vol. 49(3): 1–19;

McLoughlin, C., Lee, M.J.W. (2007) Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era, Proceedings ascilite Singapore 2007

Nunan, D. (1991) *Language Teaching Methodology.* Herts: Prentice Hall International.

Rourke, L, Anderson, T, Garrison, D R & Archer, W. (1999) Assessing social presence in asynchronous text-based computer conferencing. Journal of Distance Education 14 (2) pp. 50–71

Scardamalia, M. (2004). CSILE/Knowledge Forum®. In Education and technology: An encyclopedia (183-192)

Soetanto, R., Childs, M., Poh, P., Austin, S and Hao, J. (2014) Virtual collaborative learning for building design, *Proceedings of the Institution of Civil Engineers: Management, Procurement and Law* 167 February 2014 Issue MP1, Pages 25–34

Tracey, D. & Morrow, L. (2012) *Lenses on Reading.* 2nd Ed. New York: Guildford Press.

Voorn, R.J.J. and Kommers, P.A.M. (2013) Social media and higher education: introversion and collaborative learning from the student’s perspective, *Int. J. Social Media and Interactive Learning Environments,* Vol. 1, No. 1, 2013, 59 - 73

Wenger, E. (1998) Communities of Practice; Learning, Meaning and Identity, Cambridge University Press; UK: Cambridge

**Appendix A: Survey for AMORES**

This is a long survey, but this important that we get a clear idea of what exactly goes on in each separate school involved in the project, so we can tailor the methodology to make it as useful as possible and get to know each other better. Developing the user needs analysis is the first workpackage of the project and underpins the rest of the project. Please fill in as much as you can to answer the following questions. Just write the answers in under the questions. Thanks.

Your name

Your school

Your location

Your school’s pseudonym

**1 The learner context**

**This section is about the school as a whole**

What is the size of the school?

What is the socioeconomic profile of the learners (for example in the UK this is indicated by the percentage eligible for free school meals, other countries may have other measures – any will do to help answer this question).

What is the general educational attainment of the learners at the school (again – being more familiar with the UK context I would place here the percentage obtaining five or more GCSEs – other countries will have their own measures I am sure).

Are there any special requirements of the school (for example does it specialise in a particular subject? Does it develop specific support for homelearners, challenging behaviours etc)

**2 The literacy context**

**This section is about the school provision with regard to supporting literacy**

Does the curriculum include separate classes in developing reading skills and, for instance, writing skills and grammar? If so, how many hours per week are dedicated to literacy teaching?

Is literacy education included or linked to specific courses?

What is the teacher-pupil ratio in literacy teaching or in subjects dealing with literacy?

What learning resources are there for the pupils? (For example how well is the school library stocked, do individual classrooms have bookshelves, are there any events organized/run by the school which help to promote/encourage reading?

Details about the role of the librarians in schools. Are they information literacy specialists, do they have professional qualification status, or a teaching qualification?

**3 The curriculum context**

**This section is about the context for the specific learners that will be in this project**

What syllabus do the learners have to engage with (e.g. type and number of literature works)?

Does this include only national or also non-national literature?

How are the learners assessed, both summatively (through exams) and formatively (for example, checking to see if they have read the literature they have been assigned)

How does knowledge of their subject tie in with learning outcomes in other subjects, e.g. history, geography, foreign languages, etc.?

What kind of teaching/learning strategies are employed with the learners? (For example reading at home and writing book reports; pairwork or groupwork, presentations to other students; keeping a reading diary/journal (online or offline)).

Do any of these strategies already include the creation of e-artefacts?

Do any of these strategies already include collaborating online with other learners?

**4 The technology context**

**This section is to build up a picture of what technologies are available to the project**

Which platforms, software, technologies do you use for the following activities (if you don't do these activities just write "don't do".

* Managing students’ learning (i.e. what virtual learning environment or learning management system, does the school use?)
* Creating websites
* Creating media artefacts such as video/audio/slideshows (PowerPoint, MovieMaker, Prezi, WavePad)
* Blogging (Wordpress, Blogger, your VLE)
* Discussion boards (this might just be your VLE, but it might be something external)
* Social networking (Facebook, Ning, Linkedin)
* Sharing documents (e.g. Dropbox, Cubby, intranet)
* Conducting synchronous meetings (Skype, GoToMeeting)

Any other technologies used (such as virtual worlds, narrative learning environments,)

**5 The learners in the project**

**This section is about the learners who will be engaged in the project**

How would you describe in general your learners’

* Reading literacy?
* Digital literacy (for example, are they familiar with a range of different software, networking platforms, if so which ones?)
* Levels of engagement and motivation?
* Knowledge of, and interest in, their national literature?

What media do your learners normally use for reading (paper, tablets, phone, audio, e-readers?)

At a guess, how much time do your learners spend reading a week, typically?

How relevant do your students see the content of the syllabus to their future careers, or their personal development?

*Please note, we are only after qualitative general impressions here, to help everyone establish a methodology. We will conduct a pre-test of students closer to the start of the actual activities, so we have individual data.*

**6 The teachers**

**This is to get an idea of the skills that the project can draw on both for the people participating directly in the project and for anyone else who may be connected with the activities.**

For the teachers who will be teaching the learners engaged on the project, how would you describe in general

The experience and understanding of the use of e-artefacts in their/your practice,

Their/your experience of international collaboration,

Their/your perceptions of technologies in education,

Their/your needs in regard to training and development in order to engage f

**7 You**

**Finally, it would help to clarify your position in the project.**

What do you want to achieve for your learners?

What issues do you want the project to address?

What do you hope to get out of the project?

Anything else you want to share?