Tacit Knowledge, Explicability and Creativity – A Study of the Australian Film Industry

Irit Alony
University of Wollongong
ia120@uow.edu.au

Michael Jones
University of Wollongong
mjones@uow.edu.au

Abstract

This paper explores the links between the sharing of tacit knowledge, the explication of tacit knowledge, and creativity, in the Australian Film Industry (AFI). Subject to harsh conditions including staff turnover, tight budgets and schedule constraints, the AFI does not formulate repositories of explicit knowledge. Instead, it relies on the sharing of tacit knowledge for its success. In this setting, the explication of tacit knowledge is studied. Two concepts arise from the qualitative data, and are explored in this paper. (1) Tacit knowledge has various levels of explicability, which can be conceptualized by an 'Explicability Zone'. (2) There is a link between the level of explicability and potential for creativity. The paper concludes with recommendations for further research on explicability levels and their link to creativity.

Introduction

This paper reports research that has been conducted as part of a larger study into the organization and management of the Australian Film Industry (AFI) (Jones 2005). Data collected during this study emphasised the importance of knowledge, and in particular what appeared to be tacit knowledge, as an integral component in the creation of films. It appears that tacit knowledge is the most prominent form of knowledge in this industry. Hence, the AFI is an ideal case study to examine the role tacit knowledge plays in this creative industry.

The paper addresses three areas of theory regarding knowledge. Firstly, the discussion leads to an examination of the value and complementarity of tacit and explicit knowledge. Secondly, it formulates a discussion and a model which demonstrates the transitional state which exists between tacit and explicit knowledge. Finally, the paper presents empirical evidence of the varying explicability of knowledge. In addition, the paper addresses an ongoing problem with tacit knowledge by identifying its existence, in a practical sense, and extending this discovery to provide a practical understanding of tacit knowledge sharing.

There is a clear need to study the Australian Film Industry. It is fascinating to gain understanding of what causes the industry to work so well given all of the difficulties and constraints (Jones & Kirsch 2004). The work is executed in highly stressful conditions. There is little tolerance for mistakes and little allowance for remedial work. There is also a need to share this unique organizational environment with other researchers, and practitioners in other fields. The AFI is relevant as it illustrates the characteristics of a typical project environment. The tensions caused by the change in work practices, the change in technology, and the lack of large corporate infrastructure make the AFI an ideal candidate for the study of knowledge sharing, and the mechanisms that operate to facilitate knowledge sharing in that industry. Film work is highly reliant on knowledge sharing for its success. The goals achieved by the AFI indicate knowledge sharing is successfully accomplished. This study therefore undertakes to examine why and how this is done. This study also provides further understanding of the mechanisms that are at work when knowledge workers work collaboratively.

Knowledge sharing in organizations is of great interest to researcher and practitioner alike. Both report that knowledge sharing improves organizational performance (Lesser & Storck 2001), promoting competitive advantage (Argote & Ingram 2000), organizational learning (Argote 1999), and even survival (Baum & Ingram 1998). Knowledge sharing has also been identified to play a significant role in promoting innovation (Powell et al. 1996). Markus (2001) defined four types of knowledge re-users: Shared work producers, shared work practitioners, expertise seeking novices, and secondary knowledge miners. The concept of knowledge being a collaborative, or group, event is relevant to the AFI and the observations in this particular study support the concepts of the ‘shared work producers’ and the ‘shared work practitioners’ depicted by Markus. In particular, in this paper we study the information flow between participants, looking for knowledge sharing events.

This leads to the research objective of this paper which can be described using the following three questions.

1. What is the nature of knowledge in the AFI? Is it tacit or explicit knowledge that is evident?
2. Are there levels or types of tacit knowledge, in terms of the ability to make them explicit?
3. How are tacit knowledge and creativity linked in the AFI?

The following sections describe the AFI environment, the method of data collection, and the background of the participants. We then discuss the concept of tacit knowledge in the context of the AFI, demonstrating the different levels of tacit knowledge. The paper concludes with an address on the link between the two elements – tacit knowledge and creativity – and how the two are critical to the success of the industry. The findings provide a direction for further research on the link between these two elements.

The Australian Film Industry (AFI)

Film production, in Australia and around the world, began in the confined and regulated context of a conglomerated industry. Production companies grew which were largely vertically integrated with each factory being an independent, self-sufficient unit (Billups 2003). Today these production companies provide nothing more than a name and in some instances project finance (Billups 2003; Jacka 1997).

The Australian industry followed in the shadow of Hollywood. In the late 1940s, the large pre-war companies began breaking up to become smaller specialist enterprises who combine on a project-by-project basis to produce a film, and then disband in search of the next opportunity (Jacka 1997). There are similarities with knowledge workers in other industries, especially those that work in a project management or consulting environment, but these are the subject of further research.

This change in industry structure has bred a new type of employee, one who has no stable employment and no guarantee of income; working from project to project, company to company in search of payment or training, the two often being mutually exclusive (Arthur & Defillippi 1998; Blair, Grey, & Randle 2001; Daskalaki & Blair 2002). The plight of these casualized workers (Fairfax 2003) is exacerbated by the difficult environment of their 'industry' which works to further constrain and complicate their work situation (Emery & Trist 1965). In this new working environment, knowledge is bound to each worker, there is no central repository within which workers can deposit and extract information relative to their work. There is a great reliance on collaboration, communication and knowledge sharing.

The industry employs a large number of people and provides significant income to Australia's economy. It employs more than 16,000 people in 2,174 businesses, and generates almost 1.6 billion Australian dollars per year (Australian Bureau of Statistics 2003). It is made up of a variety of diverse firms many of which are very small (less than 25 employees) (Australian Bureau of Statistics 2003). These firms operate in a turbulent organisational environment context (Emery & Trist 1965), where work units regularly experience a high number of exceptions or unanticipated situations and frequent challenges and problems.

An environment of this nature results in the formation of what Perrow (1967) refers to as non-routine organisations. Perrow puts this down to a combination of high task variability and difficult problem analysability. In sum, the AFI is an industry which faces rapid and constant change. It presents a challenging industry, both to study and to work in, and this makes it particularly interesting as an environment in which to study knowledge sharing. Current managerial and organisational research has tended to bypass this area of business with only a few research programs taking any interest (Blair 2000; Cunningham 2002; Starkey, Barnatt, & Tempest 2000).

How the Data Were Collected

In this study the perception of the respondent is the unit of analysis. Further, the respondents are not asked to discuss knowledge management and knowledge sharing directly, rather they are led to discuss how collaboration and skill sharing occurs in their industry. The data were collected as part of a larger study into the organization and management structure of the AFI. In this report the data are analysed for evidence of knowledge sharing. The enabling and inhibiting factors surfaced through the descriptions of individual knowledge sharing events provided by each of the participants.

A series of research interviews were held with film workers during the period September, 2004 to March, 2006. This data set contains the transcripts of seven interviews. Table 1 lists all of these interviews. Selection of the first two participants was based on a referral from the University of Wollongong's film office (Film Illawarra). After these initial interviews subsequent selection of participants was based on referrals and theoretical sampling (Glaser 1978), which meant that people were only selected if they could add value to the study.

Table 1. Table of Transcripts Used

Interviewee	Profession	Date of Record	Pseudonym/Citation
1	Producer	1st September 2004	(Jim-Producer 2004)
2	Producer	1st September 2004	(Sara-Line-Producer 2004)
3	Producer	14th October, 2004	(Phil-Producer 2004)
4	Producer	14th October, 2004	(Alice-Producer 2004)
5	Production Manager	24th February, 2005	(Vera-Production-Manager 2005)
6	Production Manager	4th March, 2005	(Lyn-Production-Manager 2005)
7	Gaffer	10th March, 2005	(Simon-Gaffer 2005)

The first two interviews were held on the same day with two film producers in two separate locations. These initial interviews went from 90 to 120 minutes each, and both yielded excellent, rich information. After these two, the interviews became progressively shorter as the study progressed, with the final interviews running just short of one hour each. Glaser and Strauss (1967: 75-76) explain that it is customary for interviews to run this way:

> At the beginning of the research, interviews usually consist of open-ended conversations during which respondents are allowed to talk with no imposed limitations of time. … Later, when interviews and

> observations are directed by the emerging theory, he can ask direct questions bearing on his categories. … Thus, the time for any one interview grows shorter as the number of interviews increases.

It was decided to commence with producers because it is the producer who actually manages the set. Therefore, these people are usually in a good position to provide an overall picture of film management and the associated problems and processes, especially with regard to knowledge sharing and collaboration.

Interviews were based on open-ended questions which allowed for significant prompting and focussing. Table 2 provides a sample of these questions. They varied slightly with each interview according to the direction the interview went, and the information that was provided. It was also intended that the questions would change over time as the data accumulated into categories. It is important to note that the interview protocol did not specifically ask questions about knowledge sharing. The analysis in this paper is carried out on the experiences of collaboration and knowledge sharing as related by the respondents.

Table 2. Initial Set of Questions

OPEN-ENDED QUESTIONS.

1. In your opinion - what makes a good film?
This is a broad question, which includes all aspects of production, including creative. Through this question I am hoping to get a sense of where this person stands, and their possible influences/biases. [As well as a few leading comments.]

2. What is the most difficult/critical aspect of filmmaking?
If necessary prompt with: scheduling – budgeting – communications – cast/crew relations – production management
This is a very direct question, I am hoping to learn what areas of the process this person finds impacts the most on the production process, which may lead me to other areas for analysis/focus.

3a. What was the most difficult film you had to manage?
3b. What made it so difficult?

4a. How much reliance does your position or function place on management experience or knowledge?
4b. Which of these skills do you feel is required most?
4c. Do you think any of these skills need strengthening?
I am hoping to learn about some of the more obvious and acknowledged management problems, this may also steer me in a new and more focused direction.

5. Are there skills unique to the function of <producer> that are difficult, or rarely, attained?
This is to validate the findings from above.

6. How does the relationship between you and the production company/studio/investors/sales agents etc affect your ability to complete the film efficiently/effectively?
This question asks the extent to which the producer has his hands tied by the 'others', those external to the production.

During the interviews a digital voice recording was made, along with notes which enabled the recollection of certain expressions and body language that

would convey information pertinent to the participants' intended meaning. For example, in response to a question on the importance of communication, Sara responded by saying:

> Um, I think communication is a really, really important skill. And a lot of … I mean I'm not going to claim that most producer's don't have that, but I think being able to talk to people on a human level is vital and to listen to what people say. I mean that's one of the main skills of producers. Listening to what everybody has to say… (Sara-Line-Producer 2004).

During this part of the conversation Sara became very animated, she raised her voice a little, and made more direct eye contact. This was interpreted to mean that this aspect of her job was very important to her. Similar notations and allowances were made through all of the interviews to enable an accurate record of all information that was conveyed during the meeting. This is similar to what Glaser terms as listening 'with a big ear', meaning not to preselect or filter information (Glaser 2001).

Analysis was undertaken using qualitative data analysis software. Analysing qualitative data is often seen as a demanding, repetitive and arduous task (Basit 2003). Although predominantly a mechanical exercise, it requires an ability of the researcher to be dynamic, intuitive and creative, to be able to think, reason and theorise (Basit 2003). The goal of qualitative analysis is to deconstruct blocks of data through fragmentation and then have them coalesce into collections of categories which relate conceptually and theoretically, and which make assumptions about the phenomenon being studied. Richards (2002) calls this process 'decontextualizing and recontextualizing' and regards this as the fundamental process of qualitative data analysis.

Qualitative data analysis uses a process of reduction to manage and classify data (Tesch 1990). In this process, units of text are first de-contextualised by removing them from their source – with their meaning intact – and then re-contextualised by drawing from them a more robust, context independent meaning based on an accumulation of evidence.

The ability of the researcher to code is an important part of analysis (Basit 2003; DeNardo & Levers 2002). It involves the researcher in two ways. Firstly, the data must be divided into meaningful textual segments which are logical and which add value to the research. Secondly, a tag or label must be attached to the data which is descriptive and sufficiently abstract to encompass other similar, yet unique, datum (Glaser 1978).

The data collected in this research project were analysed using a program called NVivo™ 2.0 (QSR International Pty Ltd 2002). This software provided invaluable assistance. Data were coded more generously than would be achieved with 'paper and pen' methods, and while this most probably led to over-coding (this is a problem reported by Blismas & Dainty (2003)), it allowed ideas and issues to emerge more freely without the compulsion to force data into already established categories.

Tacit knowledge and explicability

Knowledge management literature describes, identifies and measures the sharing of explicit knowledge. However, research has emphasised two areas of difficulty with regard to tacit knowledge. Firstly, tacit knowledge is difficult to identify in the practical sense, and secondly, it is equally, if not more, difficult to isolate instances of tacit knowledge sharing as this discovery requires an explication of the tacit knowledge. For the purpose of our study we consider the model proposed by Nonaka and Takeuchi in their seminal book "the knowledge creating company" (1995). This model regards the source of creativity and innovation in the process of converting tacit knowledge into explicit and vice versa.

As a result of the project-driven nature of the industry and the loose formations of organisational structure, the conditions manifested in AFI prevent the creation of explicit knowledge repositories. Knowledge is bound within the worker, and is often difficult to formalise. Knowledge is subsequently rooted in the action of creating the project's product. The instances of knowledge sharing show the knowledge shared is clearly tacit knowledge.

Tacit knowledge appears to be dominant in the AFI. A person's experience is far more important than their qualifications, as demonstrated in the following quotes:

> They have more skills and more experience, you know, that's why I hire them… there's a high dependence on um, technical skill and experience (Phil-Producer 2004).

> If you want to go and get funding from anybody you should go along and, "well, how many credits have you got?" And "how many broadcast credits?" (Lyn-Production-Manager 2005).

The first quote shows how important skill and experience are to AFI project managers (i.e. producers). This quote shows the main criterion for hiring a staff member in this industry is their technical skill and their experience. The second quote shows this experience is evidenced by "credits", meaning, recorded employment history. The employees are assumed to be in possession of these implicit skills as a result of experience gained over periods of past employment. This description of the type of knowledge sought after in the AFI complies with Nonaka's definition of tacit knowledge in the quote below:

> "Explicit" or codified knowledge refers to knowledge that is transmittable in formal, systematic language. On the other hand, "tacit" knowledge has a personal quality, which makes it hard to formalize and communicate. Tacit knowledge is deeply rooted in action, commitment, and involvement in a specific context (Nonaka 1994: 16).

Tacit and explicit types of knowledge are not opposite concepts, rather they are complementary. Explicit knowledge requires tacit knowledge to enable its understanding, interpretation and absorption (Polanyi 1966). Explicit

knowledge provides benefits such as the ability for efficient dissemination, its use of asynchronous delivery, and the freedom from collocation. Emailing a document, for instance, is fast and efficient due to the explicit nature of its content and its ease of distribution. It does not require the two parties involved to be in the same place at the same time. Explicit knowledge is also easier to store and replicate.

In an organisational sense, tacit knowledge is difficult to store and replicate, its utility is inversely a product of staff turnover. Where tacit knowledge is confined to the individual, and thus is not appropriately explicated, it is lost when staff leave their organisation (Droege & Hoobler 2003). Explicit knowledge is, on the other hand, more reliable and consistent than the knowledge embedded in a human being. This fact on its own has been motivating creativity throughout history, as artists feel the need to explicate their thoughts so that their creations live on.

Explicit knowledge, however, has its drawbacks, as described by Stenmark (2000). These include individual difficulty and resistance, vulnerability of explicit knowledge, and the static nature of it. For the individual, explicating their knowledge entails an effort (Cowan, David, & Foray 1999) which may not seem necessary, or may even be perceived as harmful. In addition, the easy replication of explicit knowledge renders it easy to obtain, and thus more difficult to protect from theft. Finally, explicit knowledge is limited by nature, and lacks the integration of the objective knowledge, the skill and the capabilities that come with it. It also lacks the dynamism of its tacit counterpart.

Knowledge itself has many dimensions, as described by Alavi and Leidner (2001) knowledge can exist as a collection of data and information, as an object, as a state of mind, as access to information, as a capability, and as a process. In a tacit sense, knowledge resides in the mind of a person. It can be shifted from one form to another dynamically, as is required by the circumstances. From this dynamic form rises the source of creativity and innovation (Mascitelli 2000), which are crucial to the success of projects in AFI.

There are major difficulties in the process of explicating knowledge. One of these results from the knowledge owner not being aware or conscious that they possess the knowledge. Another comes from the difficulty people have in communicating the knowledge in an articulate form (Gertler 2003). Therefore, acquiring tacit knowledge can sometimes only be done via experience, and not via absorption of an explicit form of knowledge. This means some types of knowledge are easy to explicate, some are more difficult, and some are impossible. Degrees of codifiability have been previously described by Johnson and Lundvall (2002) as the extent to which it is possible to transfer the knowledge in question to a coded form. We suggest a model stating tacit knowledge has an explicability zone, as described in Figure 1.

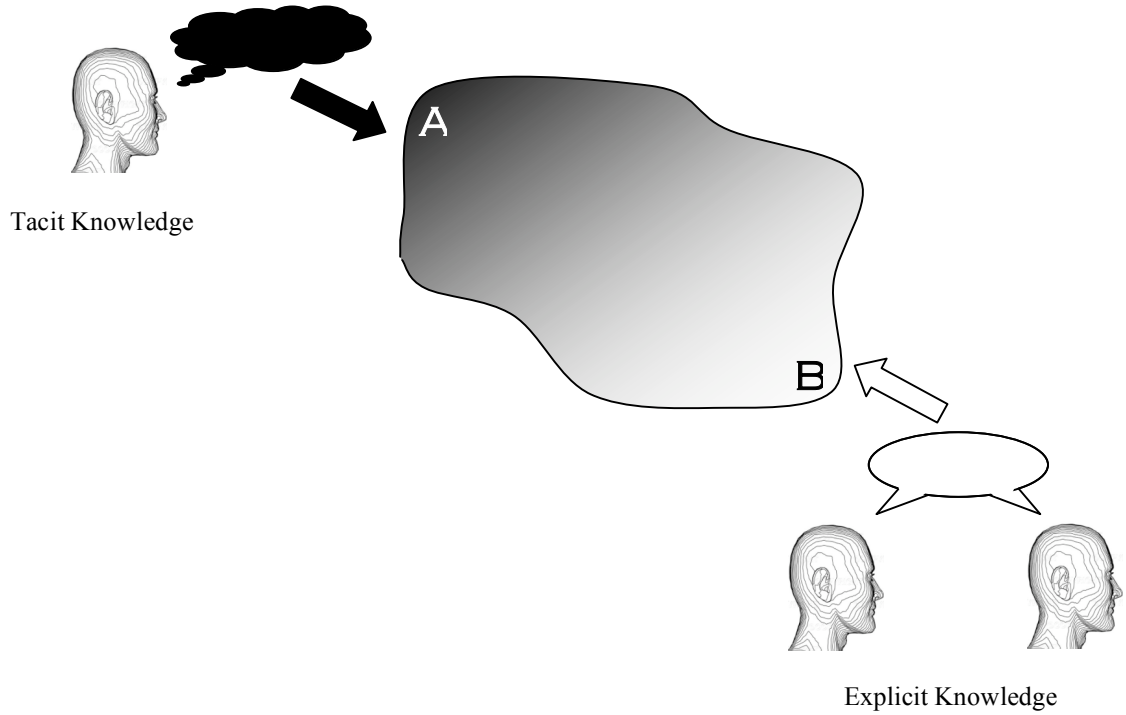


Figure 1. The explicability zone of knowledge

Figure 1 shows the interrelationship of tacit and explicit knowledge. Tacit knowledge is represented in black, and exists in a person's mind. It then has to be articulated to a more explicit form, so it can be transmitted to another person. We suggest a model in which tacit knowledge has an *explicability level*, indicating how much of it can be made explicit.

An excellent articulation of this model lies in the creation of a film. From the outset the writer creates the vision of the film. He or she conceives the story, the characters, and the plot. The knowledge that is created and retained in this exercise is in an extremely tacit form (Point A in Figure 1). In the next step of film creation the writer shares the vision with the producer or director. This is the beginning of the journey toward explication:

> There's two individuals on the film that are involved if not right from the beginning together, very close to very early in the beginning, … and that's the director and the producer, so there are two people that are going to really look after the production and know what the entire vision is. So when the producer starts working with that director they have to have a shared vision of what they're creating and how they are going to create it (Jim-Producer 2004).

As the knowledge, as a unit of information, becomes more explicit (travelling toward point B in Figure 1), it relies on the experience and skills of all involved to become fully explicit:

> Production decisions are made usually based on some creative or strategic criteria. In making decisions the producer draws on a repertoire of creative skills and experience. Decisions are then planned into the production schedule, during this sub-process, the producer will need a great deal of prior experience and knowledge – this is a highly critical factor, often if the producer doesn't have

> sufficient knowledge or experience, they will buy this in, in the form of a co-producer or line producer (Jones 2005)

Finally, the original tacit knowledge which was conceived in the mind of its creator becomes entirely explicit (point B in Figure 1). This is the point where it is communicated to the audience and all the unique referencing which keeps it tacit are lost as the vision is articulated in as acontextual a state as it can be.

The above section describes two elements of the explicability of knowledge. Firstly, it discusses the value and complementarity of tacit and explicit knowledge. Secondly, it demonstrates the transitional state of the two in the process of film production. The next section analyses data from the AFI study to provide evidence of the different levels of explicability for these different types of knowledge. Following this a discussion on the connexion between tacit knowledge and creativity concludes the paper.

Evidence in the Australian Film Industry

This section presents three examples of the explication of tacit knowledge starting from highly explicit tacit knowledge (ie tacit knowledge that is relatively easy to explicate) and progressing to tacit knowledge which is more difficult to explicate. There is also a distinction between the articulation of knowledge and the codification of it. We present the additional process required to get from the articulated form to a codified form. For each example we examine the extent of creativity evident in each process.

High explicability - Easy to explicate:
The following extract demonstrates the ease with which some knowledge can be explicated:

> You bring the heads of departments in and you bring their second command and you go through the script or you go through the schedule, and you look at things and you put it on the table and you discuss what you're intending to do in the most economical way. So they understand that we're doing it this way because it's the cheap…[most economical] way to do it and we either do it that way or we can't do it, or we do it this way and they have to lose something else (Alice-Producer 2004).

Explicit Knowledge

The example above describes an easy explication process: the knowledge owner is queried on their knowledge (what is the schedule, why are things done in this way) and articulates the knowledge in a way the other parties can understand. The process of articulation appears to be straight forward, and not complex.

This articulation is not codification. To codify this knowledge (for example, by taking minutes of the meeting, or composing a memo summarising the agreed points) another step would be required, which would provide the context for the knowledge. This context is embedded in the conversation/discussion described. Explication of the articulated knowledge would have to include the context for that knowledge to be comprehensible and transferable.

There is little creativity described in this process. The producer articulates the reasoning behind the decisions, and there is not much innovation or change delivered in the process.

Moderate explicability – Explicable with some difficulty:
This extract provides an example of knowledge that is more difficult to explicate:

> I said to the Director after I looked at it, "I think this film desperately needs a studio build, because the house that we are gonna want to use is an exterior, it's going to be so small and cutesy that the interiors are gonna to be really hard to shoot in and your never going to get the look or the lighting or the performance in these tiny little spaces or you are going to have to go for an exterior which is much bigger which isn't going to suit your purposes of the story" and I said "we are really going to need to do a studio build", and she said "look I couldn't agree with you more, but we haven't got the money have we?" and I said "we absolutely don't have the money but if we think that's our priority then we've got to go through the script from scene one to the end. And discuss every little element of it". So things, for example the wind blew through, and because the director and I were completely in synch that we had to do a studio build, when the wind blew through she said "that's fine I'll just do a close up, and I'll get a hand held fan, that's fine we don't need to get a big wind machine for that, no that's fine". And we did that little bit by little bit the whole way through just to find the money so we could build the interior, and a lot of the film was set in the interior of this house and in the end I think it was definitely the right decision to make it, plus the fact that in the film the house had to be destroyed in a storm, well it's very hard to have things crashing in a real location so we could do that in a … And yet many wouldn't see that decision that you could take that budget and say yep, we'll do that, but it's invariably and incredibly creative whether people are even conscious of it or not (Jim-Producer 2004).

This example shows how the process of articulation of tacit knowledge can be advanced by collaboration. The continuous querying extracts more and more knowledge that is relevant for the situation, which results in a creative product. Collaboration as a form of knowledge sharing has been explored before. In their study of Toyota's suppliers network, Dyer and Nobeoka (2000) referred to collaboration as one of the events indicating the occurrence of knowledge sharing. The continued exchange of knowledge by independent agents is an example of what Kilduff and Tsai (2003) identified, that the mutual exchange of knowledge increases motivation to share.

The knowledge described here is articulated, not codified. The codification of such a decision making process is more difficult than the previous example, as the context for the articulated knowledge is wider and is more difficult to transmit over a written document. It is possible, however, to transcribe the whole process, which would make it codified. The explicability of the knowledge described here is evidently lower than the first example (above).

This process resorts to the creative capabilities of the two parties. There is a need for the participants to suggest ideas that were not thought of before. The dynamic nature of the process provides the conditions for creative thinking.

Low explicability - Difficult to explicate:
This final extract shows how some knowledge is very difficult, if not impossible, to explicate, and therefore may remain in a tacit form:

> Let's take make-up & hair as an example of that because that's quite an obvious thing that um, and it's very subtle…, and if its somebody you haven't worked with before ah, that's quite hard to um, I mean make-up's quite subjective and you don't know from looking at somebody whether that's how they're going to look through the camera, so that's where you rely on collaboration with other people to tell you that yes, yes it's good, you know to another make-up artist, that you've worked with before you would say "is this person any good, 'cause it looks as if the lipstick is not the right colour and it doesn't go with the frock" and they'd go "no, she'll be absolutely fine, don't worry about it" you've always got a, nearly always, got a reference point back to um, finding out whether you've made the right decision or not (Alice-Producer 2004).

This example shows a kind of knowledge that is only gained through experience. The speaker does not refer to a manual or a colour scheme to confirm a choice of colour, but rather to the expertise of a colleague. This kind of knowledge is neither articulated, nor can it be explicated. The explicability of this kind of knowledge is very low, if existent at all. No evidence of creative thinking appears in this quote. However, it is possible the creative process occurs only in the mind of the creator, and has not been made evident externally.

Tacit knowledge and Creativity

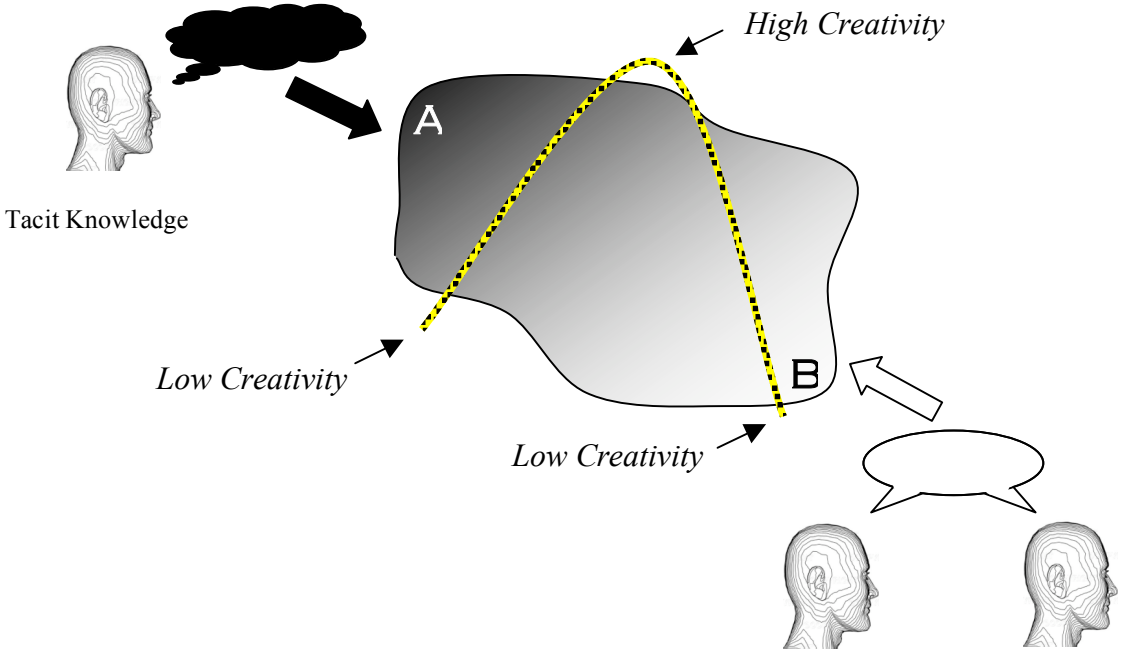
Tacit knowledge has been shown to play an important role in collaborative innovation and creative processes (Leonard & Sensiper 1998). Creativity is a process which relies on the development of tacit knowledge. Without developing a repertoire of tacit skills, which Boden (1994) calls "representational redescriptions", a person cannot create or innovate. Boden (1994: 11) uses an example of a child's imaginative creation to explain her point:

> Children need [representational redescriptions] of their lower-level drawing-skills in order to draw non-existent, or "funny", objects: a one-armed man, or seven-legged dog. Lacking such cognitive resources, a 4-year-old simply cannot spontaneously draw a one-armed man, and finds it very difficult even to copy a drawing of a two-headed man. But 10-year-olds can explore their own man-drawing skill, by using strategies such as distorting, repeating, omitting, or mixing parts.

Developing creativity is an accumulative exercise. An individual can only create new knowledge when there is already a fundamental base of tacit knowledge upon which they can build and innovate. Individuals 'develop explicit mental representations of knowledge already possessed implicitly' (Boden 1994: 12).

The examples in the section above showed three different levels of explicability of tacit knowledge. The first example shows an instance where sharing knowledge with high explicability and little creativity was evident. The second example shows the process of sharing knowledge with moderate explicability. During this process, both parties were generating ideas and thoughts that were not predictable or pre-determined. The third example shows the sharing of practically inexplicable knowledge, and no creative process is evident.

The trend in these examples indicates that the level of explicability which promotes creative processes is a moderate one. Sharing knowledge that is too explicit restricts the available leverage for flexibility and idea generation.



The sharing of highly tacit knowledge seems to make the discussion too "rigid". The possessor of that knowledge can only provide an indication of the existence of that knowledge, rather than explain the process of using it. The example which demonstrated the most elaborate creative process was the one where the knowledge gap between the two collaborating parties was small enough so one can understand the input of the other, yet large enough, so they can bring innovation into the process. Figure 2 describes this process of creativity overlaid on the explicability zone of knowledge.

Figure 2. Proposed model of creativity as it relates to explicability

As conditions in the industry prevent the formation of explicit knowledge repositories, the prevailing form of knowledge in AFI is tacit. The teams are usually a unique collection of individuals who seldom reassemble in the same form or order, and the working environment is under constant change (Jones 2005). The industry relies on the knowledge of workers and provides little support for the explication of the knowledge gained. This makes the industry vulnerable to staff turnover, and also makes the success of a project sensitive to the choice of staff. However, apart for these apparent disadvantages, the

dynamic nature of tacit knowledge and its inconsistencies are promoting the creative aspect of the work in question. Despite the many constraints facing projects in AFI, such as finance, time and availability of staff, the industry manages to perform and produces successful products. The tacit knowledge reliance is a double edged sword – it makes the industry vulnerable on one hand, but it enables the industry to overcome the many difficulties it faces and enables it to produce creative work (Jones 2005; Jones, Kriflik, & Zanko 2005a; 2005b).

Conclusion

There is an essential link between creativity and tacit knowledge, and both of these play an important part in the creation of films in the AFI. An understanding of tacit knowledge, its communication and its role in creative activities is provided here to better understand the interplay between these factors. Through an accumulative discussion the paper provides an understanding of tacit knowledge, in relation to explicit knowledge, and it examines the explicability of knowledge in this context.

The process of filmmaking can be viewed as transforming a tacit idea of a film into a vision which enables germination of that film. This vision is then disseminated through varying degrees of explicability, until it reaches the audience in an almost pure explicit form.

Furthermore, tacit knowledge is shown to play an essential role in the development of creativity. As knowledge is embedded in the members of AFI, it is flexible and dynamic. These attributes are harnessed to assist the success of this film industry. The explication process of this knowledge triggers novel and unpredictable ideas, contributing to the quality of the end product.

This area of study would benefit from further research. For instance it would be useful to gain an understanding of how tacit knowledge in the industry could be supported by technology, as this would provide a means for greater articulation and dissemination, as well as more effective capture of essential data, knowledge and skills. An understanding in this regard will not only provide benefit to the AFI, but also to many other industries. In addition, benefits could also be provided to the AFI if greater understanding were extended toward learning how to harness the benefits of explicit knowledge to support industry creativity.

Finally, this paper proposes a connexion between creativity and the explicability of tacit knowledge. Further research is required to explore this relationship, both in the film industry, as well as in other industries.

References

Alavi, M., & Leidner, D. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly., 25*(1), 107 - 137.

Argote, L. (1999). *Organizational learning : creating, retaining, and transferring knowledge* . Boston: Kluwer Academic.

Argote, L. and P. Ingram. (2000). Knowledge Transfer: A Basis for Competitive Advantage in Firms. *Organizational Behavior and Human Decision Processes*. 82 (1): 150-169.

Arthur, M., & Defillippi, R. (1998). Live and let learn. *New Zealand Management, 45*(6), 60-63.

Australian Bureau of Statistics. (2003). *Television, Film and Video Production*. Retrieved 19 August 2006. from http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/D4692FA7F7C16655CA2570DE00141E55?opendocument.

Basit, T. N. (2003). Manual or Electronic? The role of coding in qualitative data analysis. *Educational Research, 45*(2), 143-154.

Baum, J. A. C. and P. Ingram. (1998). Survival-enhancing learning in the Manhattan hotel industry, 1898–1980. *Management Science* 44, pp. 996–1016.

Billups, S. (2003). *Digital Moviemaking - All the Skills, Techniques, and Moxie you'll need to turn your passion into career* (Second Edition ed.). Studio City, CA: Michael Wiese Productions.

Blair, H. (2000). Active networking: The role of networks and hierarchy in the operation of the labour market in the British film industry. *Management Research News, 20*(9-11), 20-21.

Blair, H., Grey, S., & Randle, K. (2001). Working in film - Employment in a project based industry. *Personnel Review, 30*(2), 170-185.

Blismas, N. G., & Dainty, A. R. J. (2003). Computer-aided qualitative data analysis:Panacea or paradox? *Building Research & Information, 31*(6), 455-463.

Boden, M. A. (1994). Precis of The creative mind: Myths and mechanisms. *Behavioral and Brain Sciences 17* (3), 519-570.

Cowan, R., David, P. A., & Foray, D. (1999). *The explicit economics of knowledge codification and tacitness*: MERIT, Maastricht Economic Research Institute on Innovation and Technology; University Library, Universiteit Maastricht Host.

Cunningham, S. (2002). From Cultural to creative industries: Theory, industry, and policy implications., from http://www.creativeindustries.qut.com/research/cirac/documents/ARC_Linkages_4.pdf

Daskalaki, M., & Blair, H. (2002). *'Knowing' as an Activity: Implications for the Film Industry and Semi-Permanent Work Groups.* Paper presented at the Organisational Knowledge, Learning and Capabilities Athens Conference, Athens.

DeNardo, A. M., & Levers, L. L. (2002, 19th November, 2002). Using NVivo to Analyze Qualitative Data. Retrieved 15th August, 2005, 2005, from

http://www.education.duq.edu/institutes/PDF/papers2002/DeNardo&Levers.pdf
Droege, S. B., & Hoobler, J. M. (2003). Employee Turnover and Tacit Knowledge Diffusion: A Network Perspective. *Journal of Managerial Issues, 15*(1), 50-66.
Dyer, J., & Nobeoka, K. (2000). Creating and managing a high-performance knowledge-sharing network: the Toyota case. *Strategic Management Journal, 21*(3), 345 - 367.
Emery, F. E., & Trist, E. L. (1965). The Causal Texture of Organisational Environments. *Human Relations, 18*, 21-32.
Fairfax. (2003, 17Apr2003). It's a Casual Affair. Retrieved 05Sep2003, 2003, from http://www.alliance.org.au/leadstory/2003/fairfax.htm
Gertler, M. S. (2003). Tacit knowledge and the economic geography of context, or The undefinable tacitness of being (there). *Journal of Economic Geography, 3*(1), 75.
Glaser, B. (2001). *The Grounded Theory Perspective: Conceptualization Contrasted with Description*. Mill Valley, CA: Sociology Press.
Glaser, B., & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine.
Glaser, B. G. (1978). *Theoretical Sensitivity: Advances in the Methodology of Grounded Theory*. Mill Valley, CA: Sociology Press.
Jacka, E. (1997). Film. In S. Cunningham & G. Turner (Eds.), *The Media in Australia - Industries, Texts, Audiences* (Second Edition ed., pp. 227-244). St Leonards, NSW: Allen & Unwin.
Johnson, B., & Lundvall, B. (2002). Why all this fuss about codified and tacit knowledge? *Industrial and Corporate Change, 11*(2), 245-262.
Jones, M. (2005). 'Lights… Action… Grounded Theory': Developing an understanding for the management of film production. *Rhyzome, 1*(1).
Jones, M. and C. Kirsch (2004). The Road of Trials: Management Concepts In Documentary Film Production In Australia. 9th Australian International Documentary Conference, Fremantle, Western Australia, AIDC.
Jones, M., Kriflik, G., & Zanko, M. (2005a). *Understanding Worker Motivation in the Australian Film Industry.* Paper presented at the ANZAM, Canberra.
Jones, M., Kriflik, G., & Zanko, M. (2005b). *Worker Commitment in the Australian Film Industry.* Paper presented at the Student Research Conference, Waikato, NZ.
Kilduff, M., & Tsai, W. (2003). *Social Networks and Organizations*: Sage Publications.
Leonard, D., & Sensiper, S. (1998). The role of tacit knowledge in group innovation. *California Management Review, 40*(3), 112-132.
Lesser, L.E., Strock, J. (2001) "Communities of Practice and organisational performance", IBM Systems Journal, Vol. 40, No. 4, pp831-841.
Markus, L. M. (2001). Toward a theory of knowledge reuse: Types of knowledge reuse situations and factors in reuse success. *Journal of Management Information Systems, 18*(1), pg. 57, 37 pgs.
Mascitelli, R. (2000). From experience: harnessing tacit knowledge to achieve breakthrough innovation. *Journal of Product Innovation Management, 17*(3), 179-193.

Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation. *Organization science (Providence, R.I.), 5*(1), 14-37.
Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese companies create the dynamics of innovation*: Oxford University Press US.
Perrow, C. (1967). A framework for the comparative analysis of organizations. *American Sociological Review, 32*, 194-208.
Polanyi, M. (1966). The tacit dimensions: Garden City, NY: Doubleday.
Powell, W. W., K. Koput, L. Smith-Doerr. (1996). Interorganization collaboration and the locus of innovation: Networks of learning in biotechnology. *Admin. Sci. Quart*. 41 116–145.
QSR International Pty Ltd. (2002). QSR NVivo (Version 2.0.161).
Richards, T. (2002). An intellectual history of NUD*IST and NVivo. *International Journal of Social Research Methodology, 5*(3), 199-214.
Starkey, K., Barnatt, C., & Tempest, S. (2000). Beyond Networks and Hierarchies: Latent Organizations in the U.K. Television Industry. *Organization Science, 11*(3), 299-305.
Stenmark, D. (2000). Leveraging tacit organizational knowledge. *Journal of Management Information Systems, 17*(3), 9 - 24.
Tesch, R. (1990). *Qualitative Research: Analysis types and software tools*. New York: Falmer Press.