

Making Sense of Stories: the development of a new mobile computer game.

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Abstract

This paper analyzes the retrospective stories of a four person team responsible for developing a new computer game for mobile phones. Our theorizing is based on an in-depth, two year, case study. The research contribution this paper makes is threefold. First, it outlines and discusses some of the analytical issues at stake in the adoption of a storytelling approach to understanding IS developments. Second, we show how individuals' work stories are tools by which they make sense of organizational events and read meaning into their working lives and relationships with others. Third, we illustrate the roles that individuals' work stories play in bolstering their self-esteem by attributing positive outcomes to the self and negative outcomes to external forces, and in their strategic presentation of the self to others. Finally we outline some implications for managing the mobile game development process.

1. Introduction

This paper draws on literatures concerned with storytelling, sensemaking, attributional egotism and impression management to provide an analysis of how a new computer game for mobile phones was developed. We focus on the stories about the project told to us by individual members of the four-person development team, emphasizing in particular individuals' divergent understandings and evaluations of the product and the developmental processes by which it was created. Our story of these stories suggests that each individual's story was tailored so that s/he made sense of events in ways which protected his/her self-esteem, and represented him/her self favourably to others. Our understanding of each of these separate issues is now relatively sophisticated with studies of storytelling [1, 2], sensemaking [3, 4], attributional egotism [5, 6] and impression management [7, 8] well established. In this paper we argue that longitudinal, interpretive, idiographic

research analytically focused on individual stories can deepen our understanding of the processes by which mobile games are developed and individuals come to understand and attribute meaning to their work organization.

Despite a few notable exceptions (e.g., [9, 10] there is a paucity of research on those processes by which computer games are developed. There are still fewer studies of the *mobile* game development process, i.e. paper's that focus on the activities of mobile game developers (see, for example, [11]). Existing studies highlight the strategic business considerations, technical design issues and putatively harmonious team dynamics that feature in mobile games development. [12] give an overview of mobile gaming's value chain, potential business models and the success factors associated with a "hit" mobile game. In addition to analyzing the business potential of mobile games, [13] draws attention to the technical challenges and limitations of mobile phones. He demonstrates that when producing games for mobile phones, "developers must design games that will work on various handsets with different screen sizes, color depths, and application program interfaces (APIs)" ([13]: 24). In general terms, the literature adopts a 'harmony' or 'integrationist' perspective on development processes, emphasizing the need for shared understandings in teams, and championing supportive "interpersonal Interaction[s]" which enable "flexible and intuitive communication" and facilitate "collaboration in a constructive manner." ([14]: 3). There is also an assumption that members of development teams are prepared to accept responsibility for their mistakes rather than, "to hide the problem until it impacts other people or other areas of the project." ([15]: 4). Few, if any authors, are concerned with the socio-political, plurivocal nature of the game development process.

Our particular interest is in how people make sense of their work activities, where 'sensemaking' refers to those processes of interpretation and meaning production whereby people understand phenomena and produce intersubjective accounts [3]. Sensemaking is

important because it is by means of these processes of social negotiation that individuals and groups interpret, construct and enact organizations and environments [16]. There is a broad consensus that making sense involves narrativization, that our versions of reality often take story form, and that stories are means of infusing events with meaning [2]. As Weick (1995) has suggested, stories are a key component of sensemaking because they enable comprehension, implicate a causal order for events, allow people to talk about absent things, can act as mnemonics which may guide action, and communicate shared values and meanings. It has been claimed that 'The ultimate lack of sense is when you cannot produce a narrative [or story] to go with a situation' ([17]: 121). This is not meant to imply that all stories are shared. Indeed, there is considerable evidence that individuals and groups often evolve their own unique stories to account for actions and outcomes that suit their idiosyncratic tastes and psychological needs.

There is a large and still burgeoning literature which argues that people engage in various forms of impression management in order to influence the images that others have of them [7]; [8]. While a vast array of impression management strategies have been identified, Jones and Pittman (1982) claim that these fall into five basic categories: ingratiation (seeking to be viewed as likeable), exemplification (presenting oneself as dedicated), intimidation (seeking to appear threatening), self-promotion (seeming to be competent), and supplication (representing oneself as in need of assistance). Sophisticated forms of impression management entail engagement not only in certain kinds of behaviours (e.g., arriving to work early and leaving late), but telling stories about oneself and others that cast the storyteller in a positive light. In some instances it may be the case that stories told about the self are more influential in forming others' opinions than are behaviours. This is because good stories, persuasively told, are key aspects of organizational participants' attempts to render sensible 'the equivocality (complexity, ambiguity, unpredictability) of organizational life' ([19]: 48), being both easily memorable and intrinsically rewarding to repeat to multiple audiences, at various times, and in different contexts.

Generally referred to by psychologists as 'attributional egotism', it is well known that people tend to offer self-serving stories about events, attributing favourable outcomes to their own efforts and unfavourable outcomes to external factors [20]. The concept of 'attributional egotism' has been used widely to explain the behaviour of individuals, groups and organizations, the latter most usually through analyses of annual reports [21]; [6]. At least three

(possibly complementary) explanations have been offered for this phenomenon. Miller and Ross (1975) have suggested that it occurs as a result of information processing effects which mean that people are more likely to perceive a relationship between their behaviour and its outcome when they succeed than when they fail. Brown (1997) argues that people tend to perceive events in 'self-serving' ways making cognitive connections between their actions and outcomes in ways which protect and enhance their self-esteem. Miller (1978) has contended that people generally offer accounts of their actions which encourage others to form favourable perceptions of them (i.e. which maximize their public esteem). This final hypothesis is most intriguing because it suggests that the stories people tell about success and failure may not merely represent distorted cognition, but are manifestations of strategic intent.

To summarize, this paper constructs four individuals' stories in order to illustrate how those involved in the development of a new computer game sought retrospectively to make sense of events in ways which maximised both self and public esteem. In so doing we seek to demonstrate the research utility of a focus on participants' stories for analyzing the dynamics of team-based IT product development. The remainder of this paper is structured as follows. First, we outline our methods of data collection and analysis. Second, we give a brief account of our case study organization and more somewhat more detailed overviews of individuals' stories. Finally, we discuss the implications of our findings before drawing some brief conclusions.

2. Research Design

This paper discusses the results of an interpretive, longitudinal research project conducted between January 2004 and May 2006. Our work is predicated on the linguistic turn in the social sciences, and in particular the turn to storytelling which suggests that people are reasonably described as '*homo narrans*' ([25]: 6), and stories are the most appropriate means for representing people, actions and events [26]. All the data were collected by the first author who sought to immerse himself in the stream of organizational events in an inductive attempt to formulate 'thick description' [27]. Given the paucity of scholarly research regarding the game development process, we deemed an exploratory inductive approach to theory building to be appropriate; one which involves seeing the process from the point of view of those generating it [28]. The result, we suggest, is an in-depth idiographic case study. Our approach has been to seek

to capture the complexity of the generative forces that shape and condition new IT product developments. Importantly, we explicitly acknowledge that ‘social science is the practice of a craft’ ([29]: 215), and that the stories we have constructed reflect a coding paradigm and research interests that are, to an extent, idiosyncratic. The point is that in case study research there is no possibility of ‘fixed, final, or monologically authoritative meaning’, in part because ‘All texts are personal statements’ ([30]: 2).

The primary data sources for this study were 26 formal, semi-structured interviews with members of staff at ‘Computer Games Studio’ (CGS), a small, privately owned organization based in Singapore. The interviews all took place within a private room on CGS’s premises. A confidentiality agreement was drawn up between the first author and CGS to protect the interviewees, which perhaps contributed to their confidence to speak out on certain issues. At a relatively early stage our attention turned to a specific project, namely the development of a new computer game for use on mobile phones called ‘Revolution’. Each member of the project team responsible for developing the game was formally interviewed at least twice, once during the project and again after it had been completed. The interviews were of between 60 and 90 minutes duration, and the final 15 were recorded onto audio tapes before being fully transcribed by the first author. Detailed notes were made by the researcher during the 11 interviews where recording equipment was not used. Other data sources on which we have relied include casual observations of work processes, dozens of informal conversations with participants both at their place of work and in informal settings, and a wealth of company documentation including strategy reports, letters, memos, project documents and marketing brochures. Our analysis has also been informed by a further 26 formal interviews with Government representatives, advisers to CGS and members of other local computer games companies.

3. Stories of the Development of ‘Revolution’

3.1 Introduction

CGS was founded in 2003 in Singapore by Alf, who was the sole owner and Managing Director. With a headcount of 20 and a four layer management hierarchy CGS was a small, specialist games developer that had produced numerous products both independently and in cooperation with studios in France, Italy and Ireland. Since 1998, the computer games industry in Singapore had been specially

targeted by the Government to make an increased contribution to the country’s GDP. Three separate government agencies – the Media Development Authority (MDA), the Infocomm Development Authority (IDA) and the Singapore Economic Development Board (SEDB) – were now responsible for cultivating the games industry. In recent years, the SEDB had been spectacularly successful in persuading internationally renowned games companies from the US (e.g., Lucasfilm) and Japan (e.g., Koei and Genki) to setup fully operational offices in Singapore.

In the following four sections we present the re-constructed stories of the four team members responsible for the development of a computer game for mobile phones called ‘Revolution’. These stories have similar structures in terms of the development activities they address; “game design”, “design implementation” and “porting”, for example. The game itself was designed as a “turn-based” history game in which the player makes a single move and then awaits the computer’s counter-move. The four protagonists were all Singaporean nationals, of Chinese ethnicity, university graduates, and under the age of 35. Alf was 34 years old and not only the game designer but also the founder and owner of CGS. Gayle, who was 24 years old, was an anime artist specialising in Japanese art styles. Don, who was 20 years old, was a junior programmer seeking to become a specialist in ‘Java’ games. Andy was a 29 year old senior programmer with broad experience in Internet-related software programming and an established specialist in ‘Java’ games.

3.2 Game Designer’s Story

According to Alf, in September 2005 ZMedia (Ireland) approached CGS to develop a computer game for mobile phones called ‘Revolution’, based on the American war of independence. ZMedia’s goal was to cultivate a long-term relationship with Vodaphone as a supplier of high quality of games for their handsets. This game was one element of ZMedia’s strategy to demonstrate their ability to design, develop and deliver products to Vodaphone. Senior personnel at ZMedia had heard about CGS’ capabilities “on the circuit”, and were sufficiently confident in the company to hand over most of the creative control to them.

In his role as Managing Director Alf’s primary goal was to “deliver the project on time that’s all.” As the game designer, Alf’s contribution to the project was to produce the design for the game in terms of “the technical design mechanisms for the game, such as [the] game character’s statistics, how far they could see, what actions they could take.” He also created a rough mock-up (a series of sketches) indicating the

kind of artwork the game required. Although not an artist himself, he browsed the internet and referred to history books for usable artwork. He then passed his mock-up to the anime artist, Gayle, to embellish or modify as she saw fit. In his opinion, “At this stage of the project the game art looked pretty decent.” However, when it came to implementing the design an unexpected problem arose: as the junior programmer began converting the game concept into code the file size grew excessively and alterations to the artwork needed to be made to reduce it: “Although I designed a very nice mock-up, the restriction on the size of the Art file on the phone means that the live one may not live up to the mock-up. That’s where your, experienced artists are important. They will be able to keep the look and at the same time without using too much space.”

Unfortunately, he said, Gayle was not able to produce quality artwork using less file space: “The quality wasn’t quite there because from an artist I would expect a certain quality [sounds a little angry]. And given she was producing that kind of [low] quality, I could have done it better myself!”

This was, he maintained, not because Gayle lacked ability, but a symptom of her lack of commitment to the project and indeed to CGS as a whole. A further problem arose when the client requested that some of the icons Gayle had produced be reduced in size. This was the sort of minor difficulty that you would expect as these things are “all a matter of taste.” But, because of Gayle’s attitude, Andy, the Senior Programmer, had to undertake most of the art resizing, and as he did not have the necessary technical skills (he is not a trained artist), the ‘look’ of the game was further compromised: “...Gayle wasn’t too involved. She wasn’t that committed as now... So most of the art resizing, downsizing it was left to Andy to do it. So it didn’t turn out to be very nice. If Gayle had done it she would have touched it up a little bit. So towards the end Andy did most of the resizing. So it had a very watered down kind of look. It didn’t look nice at all!”

To compensate for Gayle’s poor game art, Andy told Don (the junior programmer) to programme some animations into the scenery such as moving water and smoke, “...one thing cool we had was that we had moving water. That was part of Don’s coding. And we had smoke, which looked pretty interesting.”

Towards the end of the project, the game had to be ported to different kinds of phones, causing more unexpected difficulties: “This was a big headache because some of the phones Vodaphone support (Sharp and Panasonic) aren’t available in Asia. I had to buy them from eBay and even then they didn’t work when they arrived. Andy had to call a friend in the UK to test out our game on the phones. Problem is that

Vodaphone have stopped supplying emulators, they want you to test it out on the actual device.”

Summarizing his impression of the project, Alf said that he had mixed feelings. On the one hand ZMedia had signed-off on the product, but on the other, he considered what had been delivered sub-standard: “I think the client was OK with the game in the end. Well, having to accept mediocre Art is pretty hard to swallow.” On reflection, he said that “I would have preferred to have brought in a more professional pixel artist.” But maintained that because “the budget wouldn’t allow [this]”, “so I had to make do with Gayle.”

3.3 Artist’s Story

Gayle said that as she was finishing a project in September 2005, Alf announced that her next job would be to work on the “Revolution” game. Her understanding was that she was responsible for designing the User Interface (UI), i.e. the icons, buttons, and overall interface that brings these elements together for the user. She said that her immediate objective was “To meet the deadline - that’s the most important goal. Meanwhile, I want to put in my best design work also. And within the time limit and all the game limitations I try to provide the best design I can.” Although Alf had provided her with a mock up for the game, the actual design owed more to her original research and the technical information disclosed to her by Don: “This [archive research] gave me a better feel for the game, particularly with respect to the colour scheme. I didn’t talk much to Alf about it, but more so with Don – mainly to see what kind of screen flow he needed.”

Gayle was adamant that she was not made aware of any particular limitations on her graphic designs, (for example, in terms of colour-depth), and that she used the latitude for creativity she believed she had been given to design an impressive-looking game. Her major difficulty at this time was getting relevant information from Don, whom she knew to be inexperienced and who she believed was struggling: “I just went wild creatively. However, I couldn’t get much feedback on my art from the Junior Programmer, who seemed snowed under with work and was holding me up. He doesn’t have much experience, so for him it’s quite tough.”

Having accomplished considerable work, Gayle said that she was then unexpectedly asked by Don to reduce the resolution of the in-game graphics, causing the look of the game “to go from a vibrant yellow-ish/red-ish look, to a very dull one.” She recognized that this was required in order to optimise the size of the executable file, - which must be transferred onto

the phone in order to play the game – but wondered why this had not been recognized earlier. This was intensely problematic because there was now insufficient time for her to redesign the game in a way that would have led to the development of a satisfactory product:

“If I were to redesign the whole thing it would have taken too much time, so I had to edit the existing artwork, and reduce the colours.”

The result was a game with expedient rather than optimized graphics, which she described as frustrating and disappointing. She was, however, surprised to find that even though she considered her work to have been spoiled, Alf, Don and Andy did not seem to think that the colour palette was in any way problematic: “Er, to me, the picture... looks very different... when it was cut down. But to the programmers and Alf, they don’t seem to think there is much difference; ‘its still ok so just cut it’ they said. I’m the only artist there, so its like, OK, you all like it, then fine I’ve nothing to say, I just give what you want!”

Recognizing that the quality of the product was fundamentally compromised, and believing that her fellow team members did not think this mattered, she began to distance herself from her artwork and the project. As a professional she continued her work, and counseled Don to reduce the size of some icons she had designed and which he had enlarged. But when he was resistant to her ideas, Gayle did not have the enthusiasm to press her opinion: “There was an icon inside the screen that was quite big and actually I warned him [Don] that the icon size might be too big and that the client might not like it. He argued that the bigger the icon looks the better and the more appealing. Although I insisted that the icon might be too big for the screen, and so, overall, the UI [User Interface] doesn’t really sit, I decided to leave it as it was.”

The product then went for client review, and, unsurprisingly, Gayle maintained, the icons had to be re-sized. This was an unnecessary complication caused by the other team members not listening to her: “Yes – I was right. But no one believed what I was saying. So, ok, I said I would change it [the size of the icons], then I told them, ‘see this is what I told you’.”

Quality issues again came to the fore when the programmers began porting the game to less hi-tech mobile phones: “Well, I think the Programmers had a lot of trouble. ‘Cos the less hi-tech phones have even less file space for the game so they have to sacrifice a lot. Like I said before, initially it [was] quite a vibrant game and then they toned it down. So it’s like even lesser colours.”

In the end, although Gayle was not in direct contact with the client, she thought the project had been a

reasonable success from their point of view: “I guess they’re [ZMedia] happy since they have asked us to make another game.” However, in her opinion a sub-standard product had been delivered. She was aware that other team members thought that issues of graphics quality were related to the technical limitations of the mobile phones the game had been developed for, but she did not agree, and cited poor overall management of the project as the primary constraint: “It’s not about the hand phone restrictions. I think its more like the planning. The programmers themselves they should know the limitations and what file size they are targeting. Things might have been better if I had been involved in the planning for the game.”

3.4 Junior Programmer’s Story

Don said that in September 2005 he was told that he would be developing a game called ‘Revolution’ similar to a previous product made by CGS, called BTL. This was his first CGS project, and he looked on it as an opportunity to gain experience in game development: “I was looking to learn something from this since I hadn’t done many game projects before, except in School.”

Andy provided him with the game code for BTL and he began modifying it to accommodate the demands of the Revolution game. For instance, the BTL game had, Don believed, too many tiles in its maps, 90 in total, and only one third of these were used in one or two maps wasting memory (as each tile has to be loaded into a phone’s memory). Don thus decided to fix Revolution maps to a standard of 35 tiles and to ensure that every tile was used at least once (and often twice) in each map. His aim, he said, was to free-up file space, in part so that Gayle could produce good quality graphics: “Saving memory space is important for other game aspects like maybe better graphics or user interface.”

During this phase of the development he consulted frequently with Gayle on graphics related issues in order to make certain that his work did not create problems for her, and provided her with the best possible platform for her to work with: “I wanted to use a resolution of 32 x 32 pixels for the tiles. I asked her ‘what’s your opinion of using 32 x 32? Is it too big? Or will it lose too much detail?’ And she gave me her opinion that it should work and that was that.”

Don said that he found the development of the game challenging, and that his task was hampered by the tedious requirements of CGS’ quality assurance principles: “For instance, once you download onto the phone the game must be able to run even if the [web] browser is open. And then the game must start up

within 8 seconds. So I had to factor that in during the production phase.”

Nevertheless, at this early juncture he considered that the art was very effective: “...the graphics looked great at this stage, so I really hoped the client would go for it.”

A number of problems then arose. First, unforeseen drastic restrictions on the size of the executable file for the game became apparent, requiring Gayle to make changes to her artwork: “I didn’t realise the game was getting bigger and bigger and so I told her [Gayle] to reduce the images somewhat. We were looking for ways to reduce the filesize.”

Second, when the game was dispatched to ZMedia for early-stage client testing the customer objected to the size of some of the icons designed for the User Interface (UI). This meant a lot of quite unnecessary work had to be undertaken resizing the icons: “...on the whole ZMedia liked the game so far, but they had some problems with the size of the icons. It’s something a little bit annoying. They [the icons] seemed fine to me.”

Third, he had particular difficulties porting the game to Sharp and Panasonic phones: “newcomers to Sharp handset-porting, such as myself, face hair-tearing moments when they try the Sharp tutorial and the sound doesn’t come out of the emulator – and the documentation doesn’t mention this bug at all.” Most importantly, when it came to porting the game, especially to less high-tech phones, the graphics quality had to be reduced still further as the 16 colours Gayle had used occupied too much file space: “So we told her we need to squeeze it down to 12 colours, and she reluctantly said ‘it can be done’; we had to make her compromise. You know... An artist wants to make it look good, they want it to be just ‘that’ way. So it takes time to compromise. But we have to. We can’t have something that looks good but then runs at 1 frame per minute!”

Once these alterations had been made the look of the game was affected profoundly for the worse. To compensate, Don said that he was asked by Andy to introduce some animation into the scenery: “For example, on the first level [of the game] there was a small pond in the middle of the map. The pond Gayle did was actually just a flat color blue. [it was] So boring looking. So I tried to make it randomly change colour so it looks like water and not like a blue thing.”

Overall, he thought that while he and his colleagues were a little disappointed with the finished product, nevertheless, the client was satisfied and the project could reasonably be described as a success: “I’m not sure exactly [what the client thought], but although we weren’t that happy with it, the office gossip gave me the impression that the Irish client was happy with it”

Don’s diagnosis of the game’s major problems was that it suffered from insufficient play-testing throughout the project in order to make sure that it was well balanced and an enjoyable experience for end users:

“Yeah, play testing. Because that time actually we should have got new blood in to do the testing. I actually believe that programmers should not test their own games. I should have got someone else.”

3.5 The Senior Programmer’s Story

Alf, Andy said, told him about the Revolution game in early September 2005, and asked him to act as a supervisor for Don who would do most of the programming. From their initial discussions, it was decided that the concept and engineering aspects of Revolution should be based on one of their previous projects (BTL). This was useful because it meant that many of the new game’s features could leverage existing assets and code, reducing the need to generate new programmes, and consequently the amount of time it would take to complete the project. The idea was to: “...roll out a game with a few nice touches, like the Gambling mini-game, but improve the performance of the game also. Improve on a previous incarnation of the game essentially.”

Andy then had a series of meetings with Don in which he advised him to re-use and modify the programming code from the BTL game. However, Andy said that he chose to employ a ‘hands-off’ style, having little day-to-day interaction with Don about Revolution, partly because he was busy working on other products, but also because he did not want to intrude on what was largely Don’s project: “I was more like a consultant. I gave him the code to look at and then see if he had any questions. If there was some code he found ambiguous then I just explained to him.”

As far as Andy was concerned Don then set about the task of developing the Revolution game to the best of his ability, making occasional modifications as requested by the client. For example, once the basic game concept had been worked out the client asked for an educational feature to be incorporated into it: “The client wanted some educational feature in it because the game itself is historical. So what we did was you get ten missions, so when every 2 mission[s] are complete you unlock a secret fact which can be viewed as part of the game options. So it’s like an encyclopedia. So after ten missions you unlock all the five facts - there’s a bit more about the game in general.”

Although peripherally aware of various redesign issues that Don faced, he was not involved in the detailed development of the game until the project was

nearly finished. Don came to him and explained that he was experiencing difficulties optimizing the file size and the porting of the game to different phones. While these issues were seemingly satisfactorily resolved from a technical viewpoint, the result was that: “it [the game] looked more generic..., simple. It would now only take 2 or 3 weeks to play it before the player throws it away since there were less levels and it made them look more or less the same. So, it was then up to Alf as level designer - to show some ingenuity and look at the flow of the game. I helped out a little with trimming the graphics also.”

In order to improve the look of the game, Andy decided to implement a two layer map; the second layer was introduced to accommodate special effects animation, like smoke coming out of the houses and water effects: “This made up for the less than lively graphical look of the game, but also meant more processing power was required, because instead of processing one layer it [the phone] needs to process two layers. Also you need to allocate some extra memory for the layer. The game still ran pretty well even though it was running on quite a reserved-speed handset.”

Unfortunately, older lower-end phones could not cope with the enhancements, so when porting to these phones Andy asked Don to take out this second layer because it made the game too slow. This meant that the lively animations the two layer map enabled were only included in the high-end ports (i.e. the more sophisticated new phones): “The porting issue! This game is a bit bigger in scope compared to BTL. The gambling segment etc. So when it came to porting we had to make a clear decision on what to take out and what not. So for the [lower-end] 64KB phones I took out the gambling portion... Then to compensate for that we gave them [the players] more [virtual] cash. So it’s a bit of play-balancing issue.”

The final version of the game that was delivered to the client, he contended, reflected Don’s limitations as a programmer: “Don was doing most of the game itself, but because his term was coming to an end I took over the project.... Design wise the code could have been cleaned up quite a fair bit. And save on memory and that kind of optimisation stuff. And I realised maybe I should have raised this up earlier on. Instead of him working all the way until the project is almost completed.... His coding style I would say is not that efficient. So there’s a lot of chunks here and there that need to be optimised.”

Despite these technical failing and the design sacrifices that had been made in terms of graphics and features, Andy was insistent that: “ZMedia were very impressed with the Revolution game since we added in some new features, graphical and design wise, to the

game, - we managed to accommodate some of their last minute feature requests to the game.”

4. Discussion

In this discussion, five aspects of our case are subject to analysis. First, we comment on the utility of our storytelling approach as a representational strategy for dealing reflexively and plurivocally with multi-faceted qualitative data. Second, we analyze how individuals’ stories were means by which they made sense of complicated actions and events. Third we suggest that each individual’s story was an exercise in impression management, designed to cast him/her-self as a sophisticated agent who behaved professionally and exercised good judgement. Fourth, we argue that the stories told to us by participants were consonant with existing theories of attributional egotism. Finally, we focus on the importance of storytelling analysis for our understanding of processes of mobile game development, i.e. the conception, evolution and delivery of new mobile computer games. Table 1 (below) outlines three dimensions of the mobile game development process that our analysis surfaces, i.e. sensemaking, attributional egotism and impression management.

Table 1: Conventional versus case study findings of mobile game development processes

<i>Characterization of process</i>	<i>Mobile games literature</i>	<i>Findings from CGS</i>
<i>Sensemaking</i>	Shared understanding of process, problems and constraints	Conflicting accounts of processes, career jockeying
<i>Attributional egotism</i>	Acceptance of responsibility; consensual understanding; pressure to support multiple devices	Blame culture - attributing positive outcomes to the self and negative outcomes to external factors
<i>Impression management</i>	Expectation of positive outcomes; concern to nurture self-esteem	“face games” designed to put a positive ‘spin’ on peoples’ conduct

4.1 Sensemaking

Our decision to present our case data as a series of individual stories reflects an increasingly prevalent view that stories are useful means by ‘which researchers can compare their experiences and gain rich theoretical insights’ ([31]: 613). Most case-based research still culminates in a single, homogenized

account in which authors retreat into the background and individual actors' voices feature only as occasional 'sound bites', having been ripped from the full stories and story threads to which their quotations rightly belong. A storytelling approach is, we maintain, to some extent an antidote to these ills. Firstly, reconstructing individuals' stories as we have done here highlights the 'fact' that those who are researched rely on us, as researchers and authors, to represent adequately their voices. That is, we need not only to be explicitly reflexive in our writings, but to take seriously our responsibilities to those whom we research [2]. Secondly, a storytelling perspective permits the elaboration of multiple stories, and interpretations of those stories, without necessarily privileging any one or group of them. Thus does a narratological analysis facilitate efforts to capture 'the diversity and complexity' of processes of organization in ways which highlight 'the discursive social nature' of organizations ([32]: 430).

The stories recounted here (or rather, versions of them) were means by which the group members sought to make their work experiences meaningful, and so to construct their organizational realities [16]; [3]. Stories of the kind we have elaborated here were important tools which helped individuals to transform what were often complex and ambiguous events, which occurred over a lengthy time frame, into relatively simple, memorable and (for them) plausible accounts. These stories were highly adaptive sensemaking vehicles which defined significant actions and occurrences, provided causal explanations, and incorporated evaluations of people and outcomes in ways that supported and reinforced their sense of self. While theorists have most often assumed that sensemaking is the result of consensual negotiation, and that sense is generally shared by group members [33]; [34], our research suggests that there may be fundamental inconsistencies between individuals' in terms of their understandings of actors, responsibilities, and events. In organizations, which are fractured and hierarchical arenas in which individuals are involved in reciprocal but asymmetric power relationships, this is important because it casts stories as means by which people seek to exercise power. That is, the stories we have investigated/reconstructed were not only sensemaking mechanisms, but attempts by individuals to further their personal and career interests at the expense of others (cf. [35]; [36]).

4.2 Attributional Egotism

The stories that the team members told to the researcher were potentially problematic for them because each person argued that while the product was

accepted by the client, it was not of the high quality that they originally envisaged. This meant that they were potentially open to accusations (by the self and others) of being at fault, possibly resulting in cognitive dissonance [37] and a loss of face [7]. They therefore had to find acceptable ways of presenting their personal actions and the results of the project, i.e. manage their external self-images in ego-supportive ways. The stories they told, similar versions of which were also (presumably) related to others within CGS and externally to participants in the games industry in Singapore, were strategic constructions designed to manage others' impressions of them. All of the stories represent their authors as dedicated (an exemplification strategy) and as competent (a strategy of self-promotion) while the junior programmer's story seems also to be a retrospective request for greater assistance (a supplication strategy). This leads us to suggest that the stories may appropriately be regarded as simultaneously elaborate 'face games' designed to put a positive 'spin' on their conduct for others, and as *rationalizations* that justified their behaviours and provided seemingly plausible explanations for outcomes that might otherwise have threatened self-esteem [38].

4.3 Impression Management

In particular, it is clear that the story each individual authored was self-serving i.e. that they tended to attribute what they considered to be positive outcomes to the self and negative outcomes to external factors. The game designer (Alf) claimed that the initial good 'look' of the game owed much to his initial research and blamed Gayle for her lack of commitment to the project which resulted in her production of poor quality final artwork. The artist (Gayle) said that she had produced the best artwork possible for the game but that this was not ultimately employed because of file space limitations. She chided her team members for not involving her more in the project planning, and blamed the programmers for not informing her about problems linked to the size of the executable file, for designing out-sized icons, not coping well with porting issues, and for their poor judgement on aesthetic issues. The junior programmer (Don) claimed to have been instrumental in making a variety of important design decisions which meant that Gayle had the best possible platform to produce her artwork, but that a number of unforeseen (and possibly unforeseeable) problems then arose which meant that compromises had to be made which had affected the final product delivered to the client. The senior programmer (Alf) argued that the Revolution game was adapted from code that he had written, that he had given Don

invaluable assistance throughout the project, and that it was his decision to implement a two-layer map which accommodated special effects animation. While he did consider that he might have been more involved in the game design process, his view was that the game's limitations reflected Don's shortcomings as a Java programmer.

4.4 Conceptualisation

Our findings indicate that the process of mobile game development at CGS was characterized by important processes of sensemaking, attributional egotism and impression management. Respectively, these principally took the form of career jockeying at the expense of colleagues, participation in a blame-culture, and face games (see table 1). Collectively, we think of these as concomitance processes, i.e. they were the offspring of self-serving motivations and activities, which together with the technical restrictions of the mobile devices and dynamic nature of the client's requirements constituted a formative context [39] in which action took place (see figure 1).

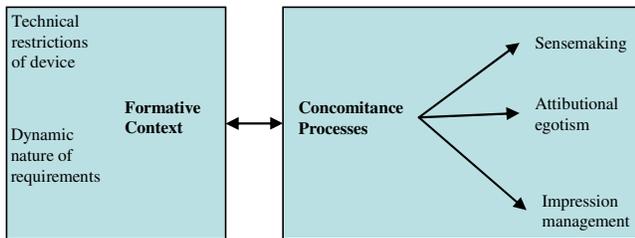


Figure 1: A Social Process Model of mobile games development

The social process model in figure 1 is our conceptualisation of the mobile game development processes at work in this case. It portrays the processes that arise during the interplay between the development process and formative context as developers tried to overcome and exploit, respectively, constraints (technical restrictions of the device) and triggers (the dynamic nature of the client's requirements). These in turn reinforced the restrictive nature of the formative context as they led to team members pulling apart as opposed to garnering their capabilities to affect a high quality game.

This finding is in stark contrast to conventional thinking on mobile games development (see table 1 for a comparison), which emphasizes the need for supportive interpersonal interaction, and intuitive communication and collaboration [14]; [15].

5. Conclusion

This paper has provided an account of the development of a new computer game for mobile phones through an analysis of individual team members' stories. Our argument has been that a focus on storytelling is a valuable means of reflexively reading polysemy back into interpretive research.

Our social process model (figure 1) and insights into the mobile games development process have further important implications for practicing managers, particularly with respect to the technical restrictions and demands of mobile devices. Firstly, managers should not be too casual about their potential impact on the development process. Experienced managers may take them for granted, which then become influential aspects of the background condition for action. As our model illustrates, this background condition can provoke detrimental socio-political side effects. Secondly, these restrictions and demands should be detailed in the game design document, which although is somewhat ritualistic, demonstrates to the developers their importance. Thirdly, managers should negotiate the technical restrictions and demands with their clients, instead of just accepting them "as given". This may depend on where the power lies between the client and developer. So, the restrictions and demands need to be managed also, before they even become a part of the formative development context. Fourthly, managers should understand their team's capability to deal with them, although this may be challenging in an environment fraught with staff mobility and where capability seems fluid. Lastly, there is a need for continuous developer reflexivity that brings into the open team members points of view throughout the lifetime of a project. This may be regarded as a useful tool for identifying disharmonious social-political concomitances (see figure 1).

Stories of games development are to some extent already common practice in the games industry. Such stories normally take the form of post-mortems, which are readily available to online communities (see Gamasutra.com for example). However, for the most part, they tend to lack research rigour and theoretical depth. For example, they are not usually conducted by independent research parties and hence fail to elaborate multiple stories, and interpretations of those stories, without privileging any one or group of them. Part of the value of this paper is that it demonstrates that longitudinal, interpretive research analytically focused on individual stories can deepen our understanding of the human dimension of mobile game development processes.

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