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Getting into the Game: Doing Multi-Disciplinary Game Studies

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This essay will focus on interdisciplinary dialogue and multi-methodology research as an inherent characteristic of game studies. Drawing from the author's experience as the leader or partner in numerous research projects in games and digital culture, it is pieced together as a travelogue of an ongoing trip into conducting game studies within the contemporary, highly competitive and often project-based academic environment. In practical terms, it aims to provide some advice on how to avoid the pitfalls waiting for those venturing into interdisciplinary games research, as well as to point out some of the benefits that can be obtained from such approaches. The essay will conclude by providing some recent examples from interdisciplinary game studies, highlighting the associated methodological challenges and their solutions, followed by summaries of the key findings.

The highly interdisciplinary character of game studies can partly be seen to be born out of necessity: since there is not yet very long history of game studies as an independent discipline, much of the current academic work needs to rely on approaches and findings provided by and rooted in other academic fields. The situation is now quickly changing as the academic communities are starting to provide game studies with a conceptual, theoretical, and methodological corpus of its own, but still for many years most of the academics working in this field will be graduates from other disciplines.

Studies in the sociology of knowledge as well as scholars working in science and technology studies (STS) have long focused on the social, political, and discursive aspects apparent in different academic practices. Doing academic research in games and play is no exception in this sense; researchers who have their background in different disciplines will also most probably carry with them the explicit and implicit assumptions about the nature of knowledge, the proper research questions or subject matters for study and the overall goals of academic enterprise, that are typical to their native disciplinary communities. Particularly when left unspoken, these kind of differences can produce confusion and conflict among various partners or stakeholders in game research.

I have long been a firm believer in the value of interdisciplinary dialogue in game studies, and in this chapter I will ground the need for such academic boundary-crossing to the fundamental character of games and play themselves. As I have also argued in a textbook (*An Introduction to Game Studies: Games in Culture*), games are best conceived as multiple-layered systems and processes of signification that mix representational and performative, rule-based and improvisational modes in their cultural character. In methodological terms, for most uses and purposes, the analysis of a game as an abstract structure without any consideration of its playing practices would be deemed insufficient, as would a study of game players not informed by some systems-oriented analysis and understanding of the ludic nature of this particular game and its gameplay.

In addition to the application of social sciences and humanities approaches in interdisciplinary game studies, this essay will also briefly discuss some methods derived from the field of design research, and emphasize the potential of game studies as a radical, transformative form of scholarly practice. Encouraging active interchange with different player communities, involvement in experimental game design practices, as well as critical

participation into discussions about the role of games in culture and society, interdisciplinary game studies can make manifest its impact on the future direction of games cultures. My final conclusions will nevertheless also modify and set certain preconditions for the interdisciplinary operation of game studies.

Interdisciplinarity: Benefits and Pitfalls

The current wave of academic interest in and discussion of interdisciplinarity reaches at least back to the 1960s, when Thomas Kuhn published his influential study *The Structure of Scientific Revolutions* (1962).¹ An early OECD commissioned report found five main reasons for the increasing rise of interdisciplinarity during the late 1960s: the development of science, the needs of students, new demands set by professional training, new kinds of needs by the society, and challenges faced by contemporary university in economical and administrative level.² Academic institutions faced an increasingly complex world with new challenges and requirements for their core activities.

The disciplinary nature of academia itself is rooted in antiquity. While Plato had been a proponent of unified science, his pupil Aristotle had tried to establish clearly delineated areas of inquiry, such as “Poetics”, “Politics”, and “Metaphysics”. The modern university system evolved from medieval cathedral schools, where both letters and sciences were traditionally taught, under the customary divisions of the *trivium* (grammar, logic and rhetoric) and *quadrivium* (music, geometry, arithmetic and astronomy). Already ancient Romans had been concerned about the dangers of overspecialisation, but the classical educational ideal considered the integration of knowledge to take place through both a community of disciplines of knowledge (*universitas scientiarum*) and a community of teachers and students (*universitas magistrorum et scholarium* – the original root for our word ‘university’).³

Disciplinary organisation of learning, and interdisciplinary or counter-disciplinary tendencies can be seen as embodiments of two main forces shaping the academic world. On one hand, reality rarely keeps within the domain of any single discipline, and advanced study into any subject will soon uncover various potentially significant connections to other phenomena, processes, or ideas that are currently discussed within some other discipline. On the other hand, intellectual continuity and pedagogical clarity generally tend to reinforce disciplinary structures. Even while today many universities feature interdisciplinary research centres, most undergraduate and graduate education continues to be offered within established disciplinary structures like subjects organized into degree programs, departments, and different faculties.

Thomas Kuhn called “normal science” the form of operation among a scientific community which is based on shared assumptions about what the world is like. Normal science is likely to suppress fundamental novelties in thought, because such innovations threaten the very fundamentals of those forms of learning which are committed to disciplinary convention and organization.⁴ The emphasis on original innovation in the increasingly competitive research world has led to putting more weight on novel work that would be boundary-breaking or otherwise transformative to the existing state-of-the-art. Within such rapidly-inflated discourses of science policies, “paradigm shifting” innovations are often considered an added value for national competitiveness and therefore also rewarded in public calls for research grants in government-funded research programs. Work in emerging areas of knowledge is often situated in boundary areas between established disciplines, leading some innovation-oriented thinkers to call for rejection of traditional disciplines altogether. Often termed ‘transdisciplinarity’, this approach to scholarship would involve working more or less permanently in the stage “beyond disciplinary boundaries”.⁵

This is the context in which contemporary game studies emerged in the late 1990s and early 2000s. An episode where an entire generation of scholars moves with fresh interest to study digital games is related to multiple reasons, which have already been discussed elsewhere.⁶ One fundamental factor has been the personal experience gained while playing digital games; in what constitutes a qualitatively major step beyond most classic board or card games, many digital games provide players with sense of entering an alternate, game-related world, while being engaged in various challenges, often in high speed action in which the player is immersed in simulation that is often audiovisually spectacular.⁷ The impact of games in culture or society, for technology or economics, could no longer be ignored. It still remained a major issue, though, what would exactly be the contents and forms that the study of games would adopt while entering academia.

Games as Inherently Interdisciplinary Objects of Study

Games appears as deceptively simple objects for analysis, perhaps explaining why art or cultural studies, social sciences, and many other fields took it so long to address them in a proper manner. This is also an issue of public perception; during the 1970s, 1980s, and 1990s when digital games spread out from the mainframe computers and research laboratories, first into gaming arcades and then into people's homes as television games, console video games, and home computer games, critical awareness of games as an art form remained rather limited. Games like *PONG* (Atari, 1972) or *Pac-Man* (Namco, 1980) may have appeared too trivial and considered "low" forms of commercial electronic entertainment not worthy of thorough artistic analyses. Some mathematicians and economists made use of mathematical game theory, and some anthropologists and historians paid attention to the rich cultural history of games and play, but apart from them, the full potential of games was left untouched by most disciplines.⁸ This might also be due to the fact that in addition to being stigmatized as "low" cultural forms and being discussed (mostly in public forums) in relation to violence and harmful media effects, games are also rather difficult and complex objects for study.

Looking at the case of *Pac-Man* for a moment, the surface or representational level of the game is simple enough: a colorful maze is drawn electronically on the screen, inside of which a rather rudimentary drama is acted out between a player-controlled yellow blob (the Pac-Man figure, constantly devouring the dots that initially fill the maze) and four ghost figures chasing it. It is possible to look at a session of *Pac-Man* gameplay recorded in video, and proceed to analyze the game on that basis – a storyline focused on the theme of eating and survival would emerge, and a rather stereotypical narrative or cultural analysis would continue from that to discuss this game as a metaphor for consumer society or predatory qualities of capitalism. But when actually played by the researcher personally, the game as an object suddenly gains a different kind of character. The "drama" taking place at the representational level of the maze, ghosts, and hunt does not necessarily vanish, but it is displaced or superseded by the dominance of gameplay – all those feelings, considerations, and actions that come along when accepting the challenge of trying to navigate a maze while eating dots and avoiding ghosts. The prominent structures in the game are no longer the precise shapes in which its graphical surface appears, but rather the underlying dynamic system of forces and counter-forces in which player actions are opposed to programmed challenges, or (as in multi-player versions of games) the actions of other players. When gamers discuss games, they generally acknowledge both of these aspects, critiquing the story-world, graphics, and audio of the game, but often they are most focused on how the game actually plays out – its dynamic gameplay core.

I have named this totality the dual structure of games; as ludic simulations coupled with a digital audiovisual medium, digital games provide players access to both a 'shell'

(representational layers) as well as the ‘core’ (the gameplay).⁹ This is also where the inherent interdisciplinarity of game studies is rooted. As both representational shell and core gameplay contribute to player’s experience with the game, neither cannot be ignored while researching and analyzing games. In a sense, games do not exist in separation from their players – except possibly as gameplay video displays shown while in an ‘attract mode’ or during similar non-interactive demonstrations; games *as games* are something that happen only during the interplay, when a player takes actions within a game, and the playful performance brings a pile of dead code alive, transforming it into what we recognize as a digital game. This is a rather obvious philosophical point, but one that is worth discussing here: games are inherently and principally events and processes, not static objects. A game is inseparable from its playing. In conceptual terms this line of thinking has its foundation on both hermeneutical and phenomenological traditions of thought, including the work of Edmund Husserl, Martin Heidegger, Hans-Georg Gadamer, Wolfgang Iser, and Maurice Merleau-Ponty, to mention some key figures. Gadamer, for example, argued in his major work *Truth and Method* that the mode of being of the work of art is rooted in the concept of play. “The mode of being of play does not allow the player to behave towards play as if towards an object,” Gadamer writes.¹⁰ But it should be noted that, even if one agrees with the basic ontological claim that games’ existence as works of art (or even the existence of works of art in general) is based on the phenomenon of their play, there are multiple conclusions one can draw from it. Scholars involved in hermeneutics and phenomenology have held differing views regarding what is the right the level of abstraction that scholars should derive from experience of phenomena, and regarding the need for immersion for the understanding of people in their lifeworlds.¹¹

One approach would be to adopt the critical gesture called ‘hermeneutic reduction’; rather than aiming to study all kinds of empirical actualizations that games become when they are played out, a researcher would instead focus on some “typical” or “ideal” form, derived in expert analysis. Espen Aarseth has spoken in favor of such approach. In his DiGRA 2007 conference paper, Aarseth takes as his starting the concept of the “implied reader” that Wolfgang Iser introduced to the field of literary studies and calls for critical attention to its ludological counterpart, the “implied player”. Rather than a historical, flesh-and-blood person, the implied player is a “role made for the player of the game, a set of expectations that the player must fulfill for the game to ‘exercise its effect.’”¹² Aarseth also pays attention to the “methodological divide” between formal and informal methods, and notes how humanities and social sciences differ in their conception of the player when applied to game studies. Being a social scientist means, according to Aarseth (2007, 131-32), being focused on the player as historical, situated, and flesh and blood, while a humanist game scholar involves seeing the player as “a necessary but uncontrollable part of the process of creating ludic meaning, a function that is created by the gameplay as well as cocreator of it.” Within this broader divide, both humanists and social scientists are then further divided as to whether they adopt formal methods (statistics in social sciences, game ontologies in the humanities) or case study based informal methods (field work in social sciences, close playing/reading in the humanities).

I basically agree with much of Aarseth’s analysis, but rather than seeing alternative approaches as oppositional and mutually exclusive, I perceive much more room for collaboration. This is mostly based on my personal experience of doing much of my games research within multidisciplinary teams, rather than on some *a priori* preference for interdisciplinarity. In terms of theoretical underpinnings, there is nothing stopping us from using approaches derived from multiple philosophical, scientific, or scholarly traditions together in our work. Often termed “methodological triangulation”, the multi-perspectival practice of combining different research approaches is generally considered to be one of the

key ways of increasing the reliability and applicability of findings. In addition to using several methods to study a single phenomenon, there also exist the options of data triangulation (researching the same phenomenon at different times or in different locations), and investigator triangulation (using multiple observers of the same phenomenon). For the fourth type of triangulation, multiple theory triangulation, it is hard to come up with examples without leaving the field of single disciplines and venturing into the complex, truly interdisciplinary regions of study.¹³

The main argument in this essay is that since games involve both representations and actions, both variously coded structures and their actual instantiation during the performance of play, there is an inherent need for multi- and interdisciplinary collaboration in the area of game studies. Dipping into the terminology pool, one could put this in terms of the *semiosis*, or meaning attached to games as sign systems, and *ludosis*, or games' meanings experienced as dynamic processes of play, being inseparable, and therefore multiple approaches being inherently important for the study of games. Some disciplines are, because of their intellectual history and key focus, more strongly equipped to study particular aspects or dimensions of games as multi-layered complexes, but no single discipline yet exists that would cover them all. I will next highlight some forms that this interdisciplinary work within game studies can take in practice, even while I will readily admit that there exist many dimensions of interdisciplinarity in game studies that I will not discuss here.

Doing Game Studies in Practice

Practical realities in academia are conditioned by the surrounding world, as are practices in many other areas of life. It is difficult to maintain the idea of totally isolated or ivory-tower-style academic practice, particularly in these days as universities are under increasing pressure to explicitly prove the value of their work to the surrounding society. On the other hand, academic research continues to enjoy relative autonomy and in principle it should be primarily rooted in the free pursuit of knowledge – a central principle in most European universities who follow the “Humboldtian model”. Established in institutional form by Wilhelm von Humboldt, founder of the Berlin University, this freedom of students and staff has its strong ideological roots in German philosophical idealism.¹⁴ In many countries there have been various challenges to academic freedom, with many of them arising today from economic concerns. The “impact” of research, for example, may be evaluated in terms of benefits to industry or economical competitiveness, rather than solely on scientific terms. Interdisciplinary game studies can be one way to navigate through these troubled waters of academic inquiry.

I will briefly discuss here three examples of games research projects that we have carried out at the University of Tampere, focusing mostly on methodological solutions and how interdisciplinary collaboration benefited or otherwise affected this work. I will skip most of the results and detailed discussion of the associated research, as these issues have already mostly been dealt with in scholarly publications for which I will give references.

Starting the Interdisciplinary Study of Games and Play

The first case study featured here is a research project entitled “Children as Actors of Games Cultures” – here abbreviated as ‘PeTo’ (shorthand derived from the original Finnish name). Carried out in the years 2003–2004, this work had its basis in the study of games cultures which our group had initiated already in the 1990s, and more immediately in work related to such areas as mobile communication, interactive television, the Internet, and gambling which had been in the focus of our work during the years 2000–2002. The work in

1990s had been institutionally located in the Department of Literature and the Arts, and most of our work was decidedly humanistic scholarship in nature, even if those early approaches to games as hyper- or cybertextuality were already seasoned with a touch of cultural studies. The institutional change at our university around the turn of the century involved several key people moving from their original home base of literary studies into the Hypermedia Laboratory, the new media department, which had a much more interdisciplinary profile. This combination of contexts might be considered typical for contemporary game studies; particularly many European games scholars have been trained in established humanist disciplines, above all within literary studies, and then have moved to focus on game studies in their own terms. The establishment of new research centers to address particularly the promising interdisciplinary areas falling in between classic disciplinary formations is also typical of the wider institutional changes touching contemporary universities.¹⁵

In the case of the PeTo study, we wanted to understand how digital games are currently played, what the particular holding power factors are that make digital play such an engaging experience, and also to situate such an inquiry within a concrete contexts of daily life. The initial research topic and focus of this study thus consisted of an entire constellation of interrelated elements that we wanted to learn to know better: what kind of objects or phenomena games are, how game players perceive them, what we can learn about gameplay experiences, and how games are situated in real life contexts. In institutional and practical terms, we had a history of several rejected research grant applications behind us – it had proved exceedingly difficult to attract funding for doing basic research in theoretically-oriented subjects related to games. It was impossible to gain support for a study which would had situated games within digital cultures and explored them in terms of their artistic and aesthetic qualities or structures – possibly considered a paradoxically “highbrow” or serious way of approaching such a “low” subject matter. On the other hand, there were already established research groups within our university working on themes such as information society and children. The research plan for PeTo was thus born half out of necessity, as our interest of doing game studies was faced with academic and financial structures that necessitated working within socially sanctioned research themes. But it was possible to turn necessity into virtue; our research proved to be beneficial and was strengthened, both methodically and in terms of the value of our findings, through the interdisciplinary collaboration in which we became involved.

The consortium in which we carried out our PeTo study was entitled “Children and Information Society” and it consisted of several research groups working on interrelated subjects. The central partners for our study were researchers coming from the fields of Early Childhood Education, Social Psychology, Computer Science, and Work Research. The entire consortium was coordinated by a new, interdisciplinary center, the Information Society Institute. Early on, an internal research seminar was established as a forum to discuss the methodologies, findings, and coordination of collaborative efforts within this broad-ranging group. The close interdisciplinary relationship was not without its challenges, and early on two partners left the consortium, due to fundamental differences of opinion regarding the practical goals and theoretical starting points of research.

The movement between humanities-based interest in game aesthetics and structural analysis on the one hand, and the social sciences related interest in the real contexts of gameplay on the other, formed the underlying basis of this study. It also contributed to the dynamic tension which proved important for its success; rather than being happy with our initial conceptions of games and digital play, we were constantly challenged by contact and discussions with our informants, as well as by our colleagues from other fields who with their questions particularly raised our interest towards the wider societal changes which surround and define the role of digital gaming today. Finding a way to address all these directions in

our inquiry, we played a wide range of different games ourselves, discussed them among our team, and used them to test various models we derived from game studies literature. In the next step, our research dialectic involved social sciences methodologies, and we launched a moderately sized survey study, followed by a smaller selection of in-depth interviews. This negotiation between perspectives offered by multiple disciplinary approaches was effectively engaging us in a circular or spiraling process, which is essential for any true hermeneutic inquiry, as we only later realized. The movement from our preconceived notions to interpretation and then to a revised understanding can even be considered essential for our entire existence in the world, as Martin Heidegger has pointed out.¹⁶ Hermeneutic inquiry has a certain playful and experimental character built into it, which is one more reason to adopt it while doing game studies. The term “hermeneutics” relates back to Hermes, the famously mischievous trickster spirit, carrying with also its associations of complication, multiplicity, jokes and puzzles.¹⁷ In our case, the joke or trick perhaps was us managing to smuggle fundamental theoretical game studies work into an applied project done under the information society research banner.

The multiple findings of our research were directed to many different audiences, a logical consequence of our multiple starting points. We were able to gain a better understanding of the key holding power factors in digital games and play through this dialogue between humanities-oriented theory and different kinds of player-informants – we interviewed both children and their parents, who were typically middle-aged Finnish women and men. The full range of concepts like ‘action’, ‘exploration’, or ‘building’ that emerged from interviews were organized into a conceptual map during analysis, clustered with the help of factor analysis, and the ensuing categories were then synthesized back into an integrated model of gameplay experience. We then moved on to compare the findings with earlier published studies that were coming from the fields of ludology, the psychology of virtual environments, and human-computer interaction (HCI), to mention the key ones, and clarified our conceptual terminology so that while publicizing the results we could properly address relevant ongoing scholarly discussions. An extensive research report focusing on games and digital play was finally produced, including entire chapters dedicated to such issues as digital play in social contexts, learning in games, games as engagement in fantasy, gameplay immersion, game violence, and issues related to the control of game playing within the context of everyday family life.¹⁸ As a joint effort with our interdisciplinary research consortium, we also produced a book which soon was referenced in public discussions as a source of information on children, games, and information society alike.¹⁹

The Pitfalls and Benefits in Doing Interdisciplinary Game Design Studies

Looking back at this first exploration into doing interdisciplinary game studies, we remain rather encouraged by the results. We were both able to contribute to the theory formation and scholarly discussions within game studies as a specific field of inquiry, while also being engaged in a more wide-reaching form of academic collaboration. We were also able to address several issues that had received ample attention among the general audience, such as game violence, socialization, and learning effects discussions. We also gained some experience about the pitfalls waiting in this road. First of all, for interdisciplinary collaboration to be truly successful, all involved parties need to be genuinely interested in learning new things, new ways of speaking, and looking at issues they already thought to know very well, and also willing to change themselves during the process. I might be wrong about this, but young researchers appear more inclined to make such jumps across conceptual and paradigmatic chasms rather than those already well established in their careers; exceptions of course exist, but mostly they just prove the rule.

A more specific catch waits for those who bravely combine socio-cultural game studies with technical or engineering-oriented research work. This can be immensely rewarding, as will be described below in more detail, but a certain mutual mixing of horizons is a precondition for starting such inquiry. Our team has been involved in joint research efforts where all parties have set off with high ambitions, but the results have been disappointing. Often this has been due to original technical research being set up as the prerequisite for human-oriented researchers starting their work. A typical dependency might be that a novel software or hardware solution is planned to provide totally new kinds of game experiences, interaction modalities, or other features which then become required for the more game- or player-focused part of study to move forward. According to my experience, these kind of development and implementation efforts very rarely conclude with anything functional within the available timeframe, or if a functional technical prototype is successfully implemented, it comes too late to be actually useful in any actual game design or player studies. This is a paradox caused by competitive research funding schemes: in order to be ranked at the top in evaluations, the research grant application needs to include such a level of ambition in all areas of its interdisciplinary spectrum, that all its promises can be considered as “significant contributions” or “original innovations” by the evaluating experts, technical and non-technical alike. A more realistic starting point is to use off-the-shelf, available and reliable technologies while implementing any design experiments or player interaction studies that are to be carried out during research. Of course, close collaboration with cutting edge technical research can be mutually beneficial, and particularly effective if it can be used for attracting funding in an environment increasingly supportive of interdisciplinary research activities. Openness to interdisciplinarity can thus be seen as a survival tactic for game studies within “impact driven” research policy environment. However, for the realities of research practice, no functional “future technology” is needed to gain an adequate sense or experience of future technology. To take one example, it is perfectly possible to simulate interaction with an intelligent computer system with the help of a hidden, real person remotely playing the role of computer – an arrangement known as “Wizard of Oz experiment.”²⁰

There are several benefits also to be gained by the joining of forces between software or hardware engineers, game designers, and game scholars. I will highlight these next by discussing several interdisciplinary, game design oriented research projects our team carried out from 2003 to 2006. By now, we had established a research group focused on digital games within our department, but I still remained as its only member who was counted among the (more or less) regular faculty of the university. There were no new job openings, as the Finnish government continued to cut its basic funding from universities, and to move the available resources into competitive research funds. Our group proved to be successful in applying for such grants, concluding with a situation in which our team of young game researchers was the single largest group within the department and one of the largest within the Faculty of Information Sciences, but the overall agenda for carrying out research on issues essential for our understanding of digital games and play continued to be strongly affected by accidents of funding, rather than be solely based on a consistent vision or autonomic evaluations by the academic researchers themselves.

In some cases the research funding programs may provide lucky accidents, too. From our perspective one of those was the large scale effort within European Union to focus research resources on ubiquitous, mobile, pervasive, or ambient media and technology. From our earlier history, which included collaboration with Nokia, the Finnish mobile phone giant, we gained some understanding of these fields. With the trickster Hermes again as our guide, we rephrased some of our ongoing research concerns within such topics as game analysis, player studies, and gameplay experience in terms of future game design. The nature of

gameplay experience and fundamental research into games' interactive ontology (that is, their way of existing as interactive events) could now be pursued under the heading of "user experience evaluation" for next generation mobile and pervasive media, and reverse-engineering some of the work carried out in game analysis provided us with fresh starting points for doing game design research. The essential continuity of research interests was thus maintained, but adjusted to fit within the rapidly changing academic landscape.

A highly interesting interdisciplinary collaboration was carried out within a research consortium which the Academy of Finland – the most prestigious sponsor of scholarship in Finland – decided to fund. This involved the concept of 'proactive computing' which stands for a future paradigm of information processing, promoted by the microprocessor industry and which is primarily designed to harness the powers of thousands of embedded processors surrounding each individual, supposedly in the rather near future.²¹ Our team joined forces with the Tampere University of Technology and the University of Art and Design Helsinki to look into how proactive technology could be implemented in ordinary homes and how to design it in a manner that would empower people rather than leave them at the mercy of some autonomous, semi-intelligent sensor-actuator network. Adopting methods developed within the field of design research, we experimented with a "cultural probes" approach (delivering into people's homes packages of cameras, booklets containing tasks, and other means of self-documentation) to gain a better understanding of how homes and "homeliness" are currently experienced among our informants. On the other hand, drawing from the philosophy of ethics and science fiction studies, we created hypothetical scenarios of future technologies and provisional guidelines for the design and implementation of them. Finally, our engineering team created different "semi-autonomous" objects and environments that we could offer people to live with in their daily lives. Our key findings are reported in a book and a series of articles.²² In them, we emphasized that a promising direction for the design future technology was the full exploration of its ludic potential, rather than the more traditional security or health solutions that have been discussed in numerous "smart home" studies. We also observed spontaneous play behaviors that families created around "smart cushions" which we had introduced into their homes. We concluded that ambient, embedded technologies might help in turning everyday environments into places more supportive of spontaneous, playful social interaction and intergenerational play than is common today.

The methodological lessons derived from this collaboration were next applied to a study we did in collaboration with Veikkaus, the company which holds the monopoly for the arranging of lottery and betting games in Finland. Our main focus here was on how the rise of digital games is going to mix with and affect the world of traditional lottery games, but to gain an overview, we launched a new kind of cultural-probes-inspired research approach. This time we designed and delivered to our informants homes a "game-like cultural probe" package, complete with playing instructions, cards and other materials. We had effectively turned participation in a socio-cultural study of games into the playing of a research game. After our informants had used the cultural probe game for a certain time, the derived materials were analyzed, and the main conclusions were synthesized in light of theoretical literature and used as an inspiration in design concept workshops we organized with professionals of the field.²³ The design concepts, in their turn, were used as starting points for game prototype implementations, in which our goal was to use Adobe Flash to quickly develop small "hybrid" games, meaning that they would draw together elements which would speak to both lottery gamers and video gamers. The interdisciplinary scope thus further expanded to include graphic design, sound design, and interaction design, as we developed and applied the process of iterative game design, testing our earlier work on game design and games' holding power factors. In this study, as well as in some later work we have conducted, the traditional "Lottery culture" has appeared as a major and rather distinctive

cultural formation in its own. Only rather recently have similar kinds of hybrid implementations (that we experimented with in our research) appeared commercially, most notably in the field of so-called casual “skill gaming”.²⁴

A third game-design-focused research initiative I want to discuss here is a large European Union funded project, the Integrated Project on Pervasive Gaming (IPerG for short), which further expanded our scope of interdisciplinary collaboration in doing game studies. Here we joined forces with experimental game art groups like Blast Theory from London and Swedish *larp* (live action role-playing) artists, leading information technology and computer science laboratories from Britain, Germany, and Sweden, as well as the in-house research and development groups of Nokia and Sony. Rather than taking responsibility for any single area in this extensive research collaboration, we were uniquely positioned to be given the overall research lead in game design and evaluation studies through the entire project. Gaining access to many different kinds of experimental games played a major role in broadening the way our team currently thinks about games as an expressive and cultural form. The games designed and evaluated during the project included multiple avant-garde larps, enhanced with sensors and communications technologies, team-based games which spanned across multiple media while making use of both narrative and musical elements, socially adaptable games which were supposed to scale down or up in order to appropriately engage different kinds of people, as well as citywide art games that exploited player movement, emergent behaviors, and social dynamics as parts of the game event.²⁵

The main outcomes from this work were organized around a new theoretical model of what defines “pervasive games” (games blended with the environment), and how they expand the Huizinga’s classic concept of “magic circle” in multiple ways, including temporal, spatial, and social expansions of gameplay.²⁶ The specific lessons for interdisciplinary collaboration relate here particularly to the benefits of scale: as dozens of researchers, designers, and experts of various kinds were jointly working with multiple aspects of pervasive games, a joint framework allowed both specialization and theorization to take place. Theoretical contributions from our team were important in providing a shared language and in harmonizing the divergent research goals between different teams. Meanwhile, it was also obvious that a computer scientist, sociologist, or media researcher all today continue to work within their own disciplinary fields and are therefore liable to produce results that are recognized and considered valid scholarship only when evaluated as such using the standards of their particular fields. Doing papers that are “pure ludology” or rooted only in the discussions within the core field of contemporary game studies are not necessarily within the interest of any such established discipline.

Conclusion: The Need for Disciplinary Game Studies

The conclusions I will draw from the above discussion of the role of interdisciplinarity within and around game studies are somewhat mixed and ambiguous ones. On the one hand, there are obvious benefits to be derived from wide interdisciplinary collaboration. The results and understanding we have been able to reach regarding digital games’ ways of existing, of different kinds of players, their experiences, and the social and cultural structures that surround games and play would not have been possible without theoretical and methodological influences, as well as lessons derived from earlier studies originating in the humanities, social sciences, design research, and software engineering, just to name a few. On the other hand, this interdisciplinary activity is at least partly stimulated by the contemporary vogue within the academic funding structures, and not always entirely motivated by reasons derived from the needs or goals of research itself.

As our example hopefully proves, game studies can successfully be carried out within a highly competitive research environment. It is also possible to successfully make contributions to fundamental conceptual and theoretical discussions of game studies while engaged in various interdisciplinary and collaborative efforts. At the same time, interdisciplinarity as a concept is based on dialogue and intermixing of disciplinary formations. As noted above, already within the classical educational ideal a discipline was understood to be based on both a certain unified organization of knowledge, as well as on a community of academics who maintain, renew, and transform such formations through their scholarly practices. If there is no discipline at the heart of game studies, it will remain uncertain what kind of interdisciplinary dialogue it can be involved in. The character of interdisciplinary scholarship has been compared to the figure of web, network, or archipelago.²⁷ A web nevertheless requires certain kind of holding points as its nodes, or it will quickly become so loose that it will easily appear both immaterial and insignificant.

I will therefore conclude that in order to truly benefit, and be beneficial for others, game studies needs to build up a certain kind of identity of its own. This will consist of concepts, theories, and critical discussions which everyone working within the field of game studies will be expected to know about (even while not necessarily agreeing with them). The busy ongoing activity within publication field of game studies, resulting in volumes like the present one, is one key element for such a knowledge-based identity to emerge. The other aspect of disciplinary identity is based on regular venues of communication that are required for the formation of a functional scholarly community. This development is also underway, as is evident in the creation of games-focused scholarly journals, conference series, and academic associations like the Digital Games Research Association, DiGRA.²⁸ It is perhaps a paradox, but based on my experience, I need to conclude that game studies can best maintain its interdisciplinary role by strengthening its disciplinary self-image. Only that way can games scholars enter into collaborative research efforts on their own terms, and contribute something genuinely new to the broad field of scholarship.

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Endnotes

¹ Thomas S. Kuhn, *The Structure of Scientific Revolutions*. Chicago (IL): University Of Chicago Press, 1996.

² Leo Apostel et al., *Interdisciplinarity: Problems of Teaching and Research in Universities*, Organization for Economic Cooperation and Development (OECD): Paris, 1972; cit. Julie Thompson Klein, *Crossing Boundaries: Knowledge, Disciplinarieties, and Interdisciplinarieties*. Charlottesville (VA): University of Virginia Press, 1996, 20.

³ Julie Thompson Klein, *Interdisciplinarity: History, Theory, and Practice*. Newcastle upon Tyne: Bloodaxe Books, 1991, 19-20.

⁴ Kuhn, 5.

⁵ For more on ‘transdisciplinarity’ see Klein et al. 2004.

⁶ See Frans Mäyrä, “A Moment in the Life of a Generation: Why Game Studies Now?” *Games and Culture* 1:2006: 103-06.

⁷ Multiple components can be identified within immersion in gameplay, as has been discussed in Ermi and Frans Mäyrä, “Fundamental Components of the Gameplay Experience: Analysing Immersion”, in *Selected Papers Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play*. Vancouver: DiGRA & Simon Fraser University, 2005: 15-27.

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- ⁸ See Stewart Culin, *Games of the North American Indians, Vol. 1: Games of Chance and Vol. 2: Games of Skill*. Originally published in 1907. Lincoln and London: University of Nebraska Press, 1992.
- ⁹ See Mäyrä 2008, 17-18.
- ¹⁰ Hans-Georg Gadamer, *Truth And Method*. London and New York: Continuum International, 2004, 103.
- ¹¹ See Nancy J. Moules, "Hermeneutic inquiry: Paying heed to history and Hermes – An ancestral, substantive, and methodological tale". *International Journal of Qualitative Methods* 1 (3), Article 1. Online: <http://www.ulberta.ca/~ijqm/>
- ¹² Espen Aarseth (2007) "I Fought the Law: Transgressive Play and The Implied Player." In: Akira Baba (ed.), *Situated Play – Proceedings of DiGRA 2007 Conference*. Tokyo: DiGRA Japan, 2007, p. 132; hereafter cited in text.
- ¹³ See Norman K. Denzin, *The Research Act: A Theoretical Introduction to Sociological Methods*. Chicago: Aldine, 1970, 297-301.
- ¹⁴ Christophe Charle, "Patterns." In: Walter Rüegg (ed.), *A History of the University in Europe*. Cambridge: Cambridge University Press, 2004, 48.
- ¹⁵ See also developments discussed in Derek Bok, *Universities in the Marketplace: The Commercialization of Higher Education*. Princeton (NJ): Princeton University Press, 2004.
- ¹⁶ Martin Heidegger, *Being and Time*. Oxford: Blackwell, 1988, p. 191-95.
- ¹⁷ Moules, Nancy J. "Hermeneutic inquiry: Paying heed to history and Hermes – An ancestral, substantive, and methodological tale". *International Journal of Qualitative Methods* 1 (3), 2002.
- ¹⁸ Laura Ermi, Satu Heliö and Frans Mäyrä, "The Power of Games and Control of Playing – Children as the Actors of Game Cultures." Tampere University Hypermedia Laboratory Net Series 6, 2004. [Finnish language report with an extended English abstract.] Online: <http://tampub.uta.fi/tup/951-44-5939-3.pdf>
- ¹⁹ Anja Riitta Lahikainen, Pentti Hietala, Tommi Inkkinen, Marjatta Kangassalo, Riikka Kivimäki and Frans Mäyrä (Eds.), *Lapsuus mediamailmassa: Nämökulmia lasten tietoyhteiskuntaan*. [Childhood in the World of Media: Views into Children's Information Society.] Helsinki: Gaudamus, 2005.
- ²⁰ John F. Kelley, "An Iterative Design Methodology for User-Friendly Natural Language Office Information Applications." *ACM Transactions on Office Information Systems*, 2(1), March 1984, 26-41.
- ²¹ David Tennenhouse, "Proactive Computing." *Communications of the ACM*, 43, no. 5 (May 2000): 43-50.
- ²² See particularly: Frans Mäyrä and Ilpo Koskinen (Eds.) *The Metamorphosis of Home: Research into the Future of Proactive Technologies in Home Environments*. Tampere: Tampere University Press, 2005. Frans Mäyrä, Anne Soronen, Ilpo Koskinen, Kristo Kuusela, Jussi Mikkonen, Jukka Vanhala and Mari Zakrzewski, "Probing A Proactive Home: Challenges in Researching and Designing Everyday Smart Environments." *Human Technology*, Vol. 2(2), October 2006. Online: <http://www.humantechology.jyu.fi/archives/abstracts/mayra-et-al06.html>.
- ²³ This approach has been described in: Olli Sotamaa, Laura Ermi, Anu Jäppinen, Tero Laukkanen, Frans Mäyrä and Jani Nummela, "The Role of Players in Game Design: A Methodological Perspective." In: *Digital Arts and Culture DAC 2005 Conference Proceedings*. IT University of Copenhagen, 34-42.
- ²⁴ For examples, please consult www.king.com, www.gameduell.com, www.worldwinner.com, www.bingo.com.
- ²⁵ For more on IPerG, its publications and games designed during this research project, see: <http://iperg.sics.se>.
- ²⁶ See: Markus Montola, "Exploring the Edge of the Magic Circle: Defining Pervasive Games." In: *DAC 2005 Conference Proceedings*. CD ROM. Copenhagen: IT University of Copenhagen, 2005. Markus Montola, Annika Waern and Eva Nieuwdorp, "Domain of Pervasive Gaming." Deliverable D5.3b from the IPerG project, 2006. Online: <http://iperg.sics.se/Deliverables/D5.3b-Domain-of-Pervasive-Gaming.pdf>. "Magic circle" was first introduced by Johan Huizinga in his work *Homo Ludens* [orig. 1938].
- ²⁷ Klein, *Interdisciplinarity*, p. 19.
- ²⁸ See: www.digra.org.

Bibliography

Aarseth, Espen. "I Fought the Law: Transgressive Play and The Implied Player." In: Akira Baba (ed.), *Situated Play – Proceedings of DiGRA 2007 Conference*. Tokyo: DiGRA Japan, 2007, 130-133.

Bok, Derek. *Universities in the Marketplace: The Commercialization of Higher Education*. Princeton (NJ): Princeton University Press, 2004.

Charle, Christophe. "Patterns." In: Walter Rüegg (ed.), *A History of the University in Europe*. Cambridge: Cambridge University Press, 2004, 33-82.

Culin, Stewart. *Games of the North American Indians, Vol. 1: Games of Chance. Vol. 2: Games of Skill*. Originally published in 1907. Lincoln and London: University of Nebraska Press, 1992.

Denzin, Norman K. *The Research Act: A Theoretical Introduction to Sociological Methods*. Chicago: Aldine, 1970.

Ermi, Laura, Satu Heliö & Frans Mäyrä. "The Power of Games and Control of Playing – Children as the Actors of Game Cultures." Tampere University Hypermedia Laboratory Net Series 6, 2004. Online: <http://tampub.uta.fi/tup/951-44-5939-3.pdf>

Ermi, Laura & Frans Mäyrä. "Fundamental Components of the Gameplay Experience: Analysing Immersion" In: *Selected Papers Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play*. Vancouver: DiGRA & Simon Fraser University, 2005: 15-27.

Gadamer, Hans-Georg. *Truth And Method*. London and New York: Continuum International, 2004.

Heidegger, Martin. *Being and Time*. Oxford: Blackwell, 1988.

Kelley, John F. "An Iterative Design Methodology for User-Friendly Natural Language Office Information Applications." *ACM Transactions on Office Information Systems*, 2(1), March 1984, 26-41.

Klein, Julie Thompson. *Interdisciplinarity: History, Theory, and Practice*. Newcastle upon Tyne: Bloodaxe Books, 1991.

Klein, Julie Thompson. *Crossing Boundaries: Knowledge, Disciplinaries, and Interdisciplinaries*. Charlottesville (VA): University of Virginia Press, 1996.

Klein, Julie Thompson, Walter Grossenbacher-Mansuy, Rudolf Häberli, Alain Bill, Roland W. Scholz, and Myrtha Welti (Eds.). *Transdisciplinarity: Joint Problem Solving among Science, Technology, and Society – An Effective Way for Managing Complexity*. Basel: Birkhäuser, 2004.

Kuhn, Thomas S. *The Structure of Scientific Revolutions*. Chicago (IL): University Of Chicago Press, 1996.

Lahikainen, Anja Riitta, Pentti Hietala, Tommi Inkkinen, Marjatta Kangassalo, Riikka Kivimäki and Frans Mäyrä (Eds.). *Lapsuus mediamailmassa: Näkökulmia lasten tietoyhteiskuntaan*. [Childhood in the World of Media: Views into Children's Information Society.] Helsinki: Gaudeamus, 2005.

Lattuca, Lisa R. *Creating Interdisciplinarity: Interdisciplinary Research and Teaching among College and University Faculty*. Nashville (TN): Vanderbilt University Press, 2001.

Mäyrä, Frans, Anne Soronen, Ilpo Koskinen, Kristo Kuusela, Jussi Mikkonen, Jukka Vanhala and Mari Zakrzewski. "Probing A Proactive Home: Challenges in Researching and Designing Everyday Smart Environments." *Human Technology*, Vol. 2(2), October 2006. Online:
<http://www.humantechology.jyu.fi/archives/abstracts/mayra-et-al06.html>

Mäyrä, Frans & Koskinen Ilpo (Eds.) *The Metamorphosis of Home: Research into the Future of Proactive Technologies in Home Environments*. Tampere: Tampere University Press, 2005.

Mäyrä, Frans. "A Moment in the Life of a Generation: Why Game Studies Now?" *Games and Culture*, 1:2006: 103-06.

Mäyrä, Frans. *Introduction to Game Studies: Games in Culture*. London and New York: Sage Publications, 2008.

Montola, Markus. "Exploring the Edge of the Magic Circle: Defining Pervasive Games." In: *DAC 2005 Conference Proceedings*. CD ROM. Copenhagen: IT University of Copenhagen, 2005.

Montola, Markus, Annika Waern and Eva Nieuwdorp, "Domain of Pervasive Gaming." Deliverable D5.3b from the IPerG project, 2006. Online:
<http://iperghome.sics.se/Deliverables/D5.3b-Domain-of-Pervasive-Gaming.pdf>.

Moran, Joe. *Interdisciplinarity*. The New Critical Idiom. New York: Routledge, 2001.

Moules, Nancy J. "Hermeneutic inquiry: Paying heed to history and Hermes – An ancestral, substantive, and methodological tale". *International Journal of Qualitative Methods* 1 (3), 2002. Online: <http://www.ualberta.ca/~ijqm/>

Sotamaa, Olli, Laura Ermi, Anu Jäppinen, Tero Laukkanen, Frans Mäyrä and Jani Nummela, "The Role of Players in Game Design: A Methodological Perspective." In: *Digital Arts and Culture DAC 2005 Conference Proceedings*. IT University of Copenhagen, 34-42.

Tennenhouse, David. "Proactive Computing." *Communications of the ACM*, 43, no. 5 (May 2000): 43-50.