

A Game Design Methodology to Incorporate Social Activist Themes

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ABSTRACT

Can a set of articulated and tested methodologies be created whose endpoint is the reliable capacity for taking activist social themes into account? In this paper we explore a variety of educational and activist game approaches, and look specifically at the themes emerging from recent projects involving game design for young women. We articulate here design practices in a methodology that could be used in the creation of games as well the teaching of game design.

Author Keywords

Game Design, Values, Design Methods, Activist Games.

ACM Classification Keywords

D.2.2 Design Tools and Techniques

INTRODUCTION

Computer games are more profitable and popular than ever before and are recognized as a significant cultural medium across a wide range of social, economic, age, and gender categories. Indeed, from casual games played on the Internet to *The Sims*, *Halo*, *Metal Gear* and *Grand Theft Auto* series, the popularity of computer games suggests a 'revolution' measurable in terms of financial, social, and cultural impact (retail sales of video games in the US in 2004, for example, exceeded \$6.2 billion, not including hardware, peripherals, and related products). Games are a cultural medium, carrying embedded beliefs within their representation systems and structures, whether the designers intended them or not. In media effects research, this is referred to as "incidental learning" from media messages. For example, *The Sims* is said to teach consumer consumption, one of the values of capitalism: it encourages

players to earn money so they can spend it and acquire goods. The *Grand Theft Auto* series was not created as an educational game, but nonetheless, it portrays its world as a violent place, rewards criminal behavior, and reinforces racial and gender stereotypes. Many scholars, makers, and consumers observe that games can embody antagonistic, and antisocial themes—violence and gore, genocide, crime, cruelty, problematic representations of bodies in terms of gender and race, and even viciously competitive game interaction and game goals [4,5,22,29,30]. While of course this is not the case for all games, these issues arise in a notable number of popular games. Our goal is not to denigrate existing games, but offer other alternatives for future game development. How can a game designer intentionally "break the mold," especially when designing for social themes? In this paper, we use the interdisciplinary "RAPUNSEL," an educational computer game developed to teach underprivileged girls computer programming, to explore the use of such a methodology.

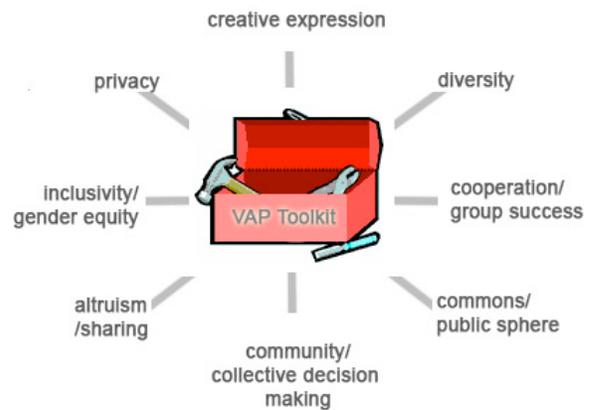


Figure 1: The V.A.P. Toolbox: Integrating Values

In our work we build on prior research incorporating the study of ethics, science and technology studies, and design disciplines. We believe that it is not enough to stop at the point of recognizing that human principles (negative and positive) could be embodied in design, but to set forth particular principles as a design aspiration. Prominent social critics, artists, philosophers, social scientists, computer scientists, and legal theorists have deepened our

understanding of the complex relationship between technology and human values [e.g. 2, 8, 19, 23, 26, 27, 31, 33, 39]. There is a will, not only among concerned observers but also those who play and create games, that existing games should change, or rather, that games should at least be developed in a way that they could include ethical ideals – or *human values*. Accordingly, our work urges designers and producers to include values as the set of criteria by which the quality of a given technology is judged, to strive actively for a world whose technologies are not only effective, efficient, safe, attractive, easy to use, and so forth, but that promote the values to which the surrounding societies and cultures subscribe. These values might include liberty, justice, inclusion, equality, privacy, security, creativity, trust, and personal autonomy. In the case of games for girls, this values list includes gender equity as a guiding principle. In our study, we explore the case of RAPUNSEL, which strives to be a girl-friendly game that teaches basic programming skills.

MISSION

How can designers influence existing game design paradigms? By now there is a tradition in technology studies that has stressed a relationship between design and values, and has made some progress in how to structure design practices. In our project we have developed a specialized version of this inquiry in relation to computer games, which we hope to promulgate in both industry settings as well as educational institutions. One challenge for those who take on this task is, of course, exactly how to design to support gender equity – in what ways can the value of gender equity be integrated as gender inclusive goals into the day-to-day practices of technology and game design, thereby giving rise to *better* systems, *better* technologies, and *better* games?

We believe that a well-crafted approach to embedding particular principles in design will have the capacity to alter the practices of conscientious designers, and in turn, help them to realize their goal of creating games which support an array of values. In order to develop a design approach (or, best practices) for taking values systematically into account, we generated several key questions:

- How can values be consistently and systematically integrated into the design of software systems?
- How close can one get to making values investigations in the context of technical design scientifically rigorous?
- Is it possible to construct a viable set of general software design principles that could lead to the integration of values across a variety of design tasks, and in particular, games?

The V.A.P. methodology can be used to create games specifically intended to be activist games. But it can also be applied to the design of more mainstream commercial and educational games. When using V.A.P. to embed values into the mainstream game design process, values will be one of many competing game design requirements. Intentionally embedding values, however, stands a better chance of creating socially conscious games than ignoring the topic and thus leaving embedded values to chance. Thus, the eventual outcome of this intervention is to bring about in designers a greater attunement to values as well as a change in design practices to realize values-relevant goals. By adding values to design considerations, we hope to assist designers in making games that better reflect social themes.

OTHER METHODS

Artists have long used games as both research methods and as outcomes of research processes. Dada, Surreal, and Fluxus artists used games to investigate war, the unconscious, ideas about networks, and the meaning of artwork itself. Artists have long been critical users and consumers of play systems.

Activist theater director Augusto Boal's public games methods [6] were derived from his work while creating The Theatre of the Oppressed, developed during the 1950's and 1960's in Brazil. Boal incorporated games that could serve to "act out" problematic social situations that directly affected participants' rights

In addition to performance, games have been enacted to have social impact in large-scale public participation. Founded by innovators in the 1970s, The New Games Movement was a manifestation of the myriad social questions that arose from the 1960s California counterculture [32]. The members of the movement were not merely interested in play, but believed that the types of games people play, as well as the way they play them, was culturally significant. The people engaged with the movement developed games in order to transform culture through play. New Games provided a significant foundation in critical play and an engagement in real space to pursue it. In 1974 the group held a "New Games Tournament," where people could play large scale, physical games together. *Play hard. Play fair. Nobody hurt.* These three principles were central to the design (and play) of any New Games game [34]. The games were intended to alter the way people interacted with each other, across perceived limitations of age, ethnicity, gender, and economic background. The group positioned games as a way of getting people such as war protestors to engage in new types of play—in other words, actively changing games to better reflect desired outcomes. Brand argued that one cannot alter a game by winning it, judging it, or watching it: "You change a game by leaving it, going somewhere else and starting a new game. If it works, it will in time alter or replace the old

game"[32]. Such subtle changes in gameplay can have larger ramifications when it comes to activist design.

The design field, too, has evolved methods for incorporating social values. Our work, to date, recognizes significant contributions of other initiatives that share deep connections and commonality of purpose with ours. These include Participatory Design [e.g. 10,12,18,31]; Value Sensitive Design [e.g. 16,17]; Reflective Practice [e.g. 35]; and Critical Technical Practice [e.g. 3,11,28].

THE VAP METHOD

To address human themes in game design and foster the integration of values into the design practice, we have developed a methodological framework, "Values in Play" (V.A.P.) to foster values integration into the design process through the creation of a toolkit to go along with this framework. The V.A.P. framework has been further developed through work with RAPUNSEL, a dance game to teach girls programming. The V.A.P. framework is not intended to replace other well-established design approaches or methodologies, but rather to supplement them, to augment software design philosophies that currently only target, for example, reliability, usability, functional efficiency, good gameplay, etc. Although our core concern is how to design systems that meet the constraints suggested by important social values, we must also meet traditional software and game design criteria as well.

Development of the Values at Play (VAP) Approach

The preliminary approach (sketched out and applied to a case study in [14] comprises three "constitutive" and iterative activities: Discovery, Translation, and Verification.

- 1) Discovery: the activity in which designers "discover" and identify the shared values relevant to their project; 2
- 2) Translation: the activity in which designers "translate" value considerations into architecture and features into game iterations; and
- 3) Verification: the activity in which designers verify that the values outcomes they sought have been realized in the game.

Designers do not undertake these activities in a strict serial order, but rather this interrogation works in parallel, with other design practices, as outputs from each are expected to feed back into the others, in iterative steps.

1. Discovery

The goal of this activity is to identify values that might be relevant in (first), the initial stages of a given project, as well as (second) each iterative stage of development. Although the explicit output of discovery—a set of values—will vary radically from project to project, the steps we suggest designers might follow remain stable across projects. The steps emerge from the overall need to answer the question "What larger human themes emerge in the creation of this project?"

Values Checklist

To start a values discussion, it is useful to start with a list. The specific list of values will vary radically from project to project. This is the first of the systematic steps that a conscientious designer might follow in order to "discover" the list of values relevant to any given project. While the list below is far from an exhaustive, it is offered to help designers get started thinking broadly about social values in games.

Diversity	Security/Safety
Justice	Creativity and Expression
Inclusion	Cooperation
Equality	Sharing
Privacy	Trust
Gender Equity	Authorship
Diversity	Liberty

By adding to, deleting from, and ultimately creating their own list with the team and with stakeholders, project designers can initiate an inquiry into the sources of values in a given project, and prioritize them in the design process.

Because the motivation to create RAPUNSEL was based on a desire to make a girl-friendly game and to include girls' perspectives in software design, we focused on the values of:

Cooperation	Creativity
Gender Equity	Authorship

Values might be expressed in the definition of a project.

Sometimes, values are expressed explicitly in the functional definition of a system, though this need not always be so. For example, a company that wishes to make the next commercial shooter game smash hit might define the project within the first person shooter genre; this alone brings about embedded values in terms of competition, creativity, potential violence, and goals.



Figure 2: The PEEPS game, the outcome of the RAPUNSEL project

Games for girls are particularly challenging because they can embody larger assumptions about what girls like and how to market to them as a group, and ultimately could support outcomes that might not match a designer's intentions to empower girls, for example, or promote equity of interest in and engagement with technology. Even the general question "what do girls like" is in itself rife with assumptions proffered through marketing, media, and cultural assumptions; the question itself must be considered with nuance to become useful. Articulating a variety of player styles and play preferences might, in this example, be far more useful.

Values might emerge in specification of game mechanics.

Here, examples range from the reward structure to the point of view in the game. For example, a particular design enables cooperation – such as collective 'inventories,' rewards for sharing, or how much players are able to communicate and work together, or even the point of view in the game. The point here is not to say that competition is inherently "bad," but there might be different forms of competitions girls might express and have an interest in. Therefore, we designed several kinds of reward systems in RAPUNSEL to satisfy different competitive and cooperative urges: A game's reward system is a crucial mechanism for expressing the game's goals and values. In the RAPUNSEL game, designers opted for a reward system that would reinforce larger project goals of cooperation in emerging social behaviors. [21]. Players can seek rewards based on their own creativity and know-how in designing clothes and dances, players can share and earn points, gaining status, and players can actively challenge each other to dance based competitions. Players importantly have the option of turning down competitions if they are non-competitive players. This approach accommodates diverse play styles. Points are awarded as "creativity" and "social" point (Figure 3.).

Furthermore, as a social system where users engage in frequent interactions and exchanges, RAPUNSEL naturally raises considerations about how software design leads to the engineering of social relations, including right and wrong behavior in the treatment of others.

Another very different example lies in gameplay perspective, and here too we can see how values are affected in the very game engine design. For example, a "god's eye," controlling point of view and the ability to manipulate large scale events and characters in games implies different values than, say, collaborating with characters to produce a desired result. Complete control over events, weather, or human or non-human characters in god's eye mode may foster a player's sense of autonomy, authorship, security, and self-esteem, but the god's eye control may not necessarily cultivate sharing, cooperation, equality, or diversity.



Figure 3: A segment of the game toolbar, with two kinds of points tracked

Project Stakeholders' values set up preliminary expectations that frame any given project.

Stakeholders can be clients, nonprofit groups, publishers—anyone with investment in the success of the project. Many game designers, for example, design for clients who bring to the project concerns about markets and distribution as well as already successful titles that affect the design process and its outcomes. Certainly this is one of the more obvious junctures for values integration, and designers may or may not agree on the client's values orientation. Profitability is of course a major expectation for almost all projects. One issue in particular in designing 'games for girls' are the goals of the stakeholders in relationship to gender assumptions—is this interest well researched and is intention deep? Is success defined in terms of market share, or in terms of principles such as self-esteem, self-efficacy and autonomy, creativity, etc.?

Background and Experience of Design Team and the Players affect the design process.

Designers themselves are shaped by their expectations, goals, education, culture, economic, and social context. Recognizing ones' own values is a first step. Assessing "where the team is coming from" is a difficult but necessary part of the reflection on the values held among those in the creative environment.

An example of a designer-introduced value in the context of RAPUNSEL was 'diversity,' which emerged in prototypes

exploring other, more technical, issues. Once “discovered” and discussed, it became clear that this value was of importance to several members of the team and was then included, explicitly, in the list of values. To RAPUNSEL team members, diversity meant not only expanding the general activity of programming across boundaries of age, gender, economy, and ethnicity, but also fostering a diverse range of approaches to learning. Understood in this way, diversity links to high-level conceptions of distributive justice, such as Michael Walzer’s “complex equality” which portrays a just world as one in which a variety of principles determine the allocation of social goods across a variety of autonomous spheres, respectively, so that people who may not excel in one sphere, may do so in another [38].

Another obvious source of values are players. Having recognized the importance of this key population in determining the values to be embodied in a system, the challenge is how to go about discovering the values that are important to them in relation to a given system. For RAPUNSEL, the team found prototyping to be an essential component in discovering players' beliefs, preferences, and values.

Social and political values, policy, legislation generate background constraints.

For example, how much privacy a log-in system offers, what is shared publicly, what is freely exchanged--these are all affected by larger cultural and social norms and have implications for the values embedded in a game.

The acts of discovery for a given activist design project are thus far ranging, and represent significant challenges to designers. This provides an initial “values checklist” which can serve as a starting point to launch consideration of social values to embed in a game. Many more values exist than can be listed here, but for RAPUNSEL, the list of project values after the discovery phases included: cooperation, sharing, diversity, and fair representation.

2. Translation

This is the activity of embodying or expressing values in systems design. It comprises three sub-activities: Operationalization, Implementation, and Resolving Value-Conflicts.

Operationalization involves defining value concepts, which, like privacy, equity, social justice, access, autonomy, and sociality, are often understood only in abstract and general terms.

Individual game features are tied to values.

The idea is to express these definitions in operationally accessible, concrete forms so they may be created as design features. Developing operational definitions for several values that crop up a variety of game design contexts is key to this process. Creating the design for a game, then,

involves making meaningful play happen through the incorporation of these values. “Gender Equity,” for example, is a value that the team must not only identify, but also design for – as a guiding principle, or constraint. In our case, we opted for defining this value in practical terms as ‘girl friendly’ features, and accordingly, we could design along the lines of partner conversations and prior research. Therefore, a project feature which may speak to this player group could include evolved chat system, for studies show teenage girls are deeply engaged in instant messaging and chat as a means toward higher levels of computer use [17].

As mentioned earlier, cooperation emerged as important project values and needed to be cleverly implemented in the game. One of the ways designers sought to do so was through development of robust mechanisms for sharing program code among players allowing several participants to work together to achieve goals. To promote core project goals of acquiring and improving programming skills, players were encouraged to write new code, but the systems as designed to make it possible (and easy) for players to share snippets of code with others.

Operationalizing values requires a jump from 'concept' to 'feature'.

Cooperation, sharing, and fair representation are some of the values our team has identified for working on games for girls, but the process of designing these values into the fabric of the game interaction, mechanic, world is not always straightforward. If the value is to be meaningful in the game, it must be integral to the game play mechanic, but the leap between the ideal value and the feature could sometimes seem like a leap of faith. When implementing the value of cooperation in a game, for example, one might create tasks that can only be completed by two or more players cooperating, or may design a game that rewards large coordinated group efforts over those of an individual. Whether this feature, after implementation, in fact leads to cooperation or rather, unfriendly competition remains to be seen and must be verified (a later stage).

Implementation is, in some sense, the heart of design, wherein the central concern is transforming, or “translating” ideas, intentions, requirements and concepts into concrete design specifications and then, even more concretely, to lines of code in a program. Similarly, this is true in the case of values, except that the concepts in question are operationalized values.

Implementation involves translating, testing, and iteration.

Even if the design has incorporated the translated value into a cohesive design, a designer never actually knows the design is successful unless players and testers are involved and feedback incorporated again into the design.

Continuous review of values during implementation safeguards important design features.

Values must be reviewed and re-reviewed during the duration of the implementation process as important

features supporting the design may be cut. Often times, in the short time span and the hectic pace of implementation, small details become left out of, or altered from, the original design for a particular release or round of iterative player testing. Sometimes, minor things may need changing at a later date, such as user name log in lengths not limited correctly, or the like. But at other times, features can be triaged at the last minute that, while not necessarily contributing as much to technical aspects of the project, are absolutely necessary to upholding project values. From our design experiences, this is a significant challenge, especially on large teams.

Even if values are expressed and operationalized into the design, the features or aspects that embody values are oft times the first to be cut due to constraints of time, energy, and funding. In our work we discovered that features lacking in a particular game build, such as the lack of a button, insufficient visual organization, missing graphic or audio feedback for mouse movements, or more complex features such as map in a game might immeasurably alienate many players unfamiliar or unused to playing games. In regard to educational games, this is compounded because unfamiliar elements introduce new challenges: in RAPUNSEL, the task --to present computer code --is difficult to display in a visually appealing manner without making it completely graphic, and therefore, not how players would encounter code in the 'real world.' In this case, trying several approaches, and marking the windows with icons, assisted in overall comprehension of the various code bits presented.

Disagreements are natural.

Great team arguments may ensue in regard to values decisions couched as "handholding" features perceived to speak too obviously to players, or to overly assist players. Therefore, common values goal for all participants on the project, and reviewing the values on a regular (in our case, weekly basis) may keep features prioritized in implementation that supports values without going overboard. As an example here, in RAPUNSEL, the scaffolding of the options available to players was designed to build up their knowledge about programming. We started by giving the players to alter nothing but a parameter, such as shoe color. Then we allowed for more and more changes, introducing more aspects of code. This approach was favored by some team members, and not others: many self-taught programmers favored looking at existing, 'working code,' and allowing players to hack away at it to see what it does. The issue with this approach was catching errors in the player's editing, and building a smart enough editor to catch all of the possible permutations a player might generate.

Values must be reviewed, re-reviewed for 'feature creep.'

During the duration of the implementation process, values must be cyclically reassessed, as new features that do not support the design may be added. Inspiration and a particular round of player testing can lead to the adoption of new design decisions, some of which may actually improve embedded values but could also be detrimental or may conflict with the values aspects of the project.

Resolution of value-conflicts is an ever present need in design.

In many cases these conflicts appear obvious, such as when one of the values is clearly dominant, or a design option is overwhelmingly costly, or simply trivial. But experience with software design has shown that certain conflicts are recurrent and difficult -- for example, security versus ease-of-use, privacy versus accountability, etc. Because the science of assessing values is still developing, nuances in the definition of values may vary from team member to team member, or the team's relative commitment to the values in conflict is unclear. Our preliminary work has revealed two key strategies that we have called "dissolving conflict" and "values trade-off," respectively.

Dissolving values conflict usually means a redesign.

Here, in the case where two values conflict, designers find ways, through creative re-design, to satisfy both values simultaneously; in the latter, they decide to trade one value off in favor of the other. Examples from real life design in projects created for girls abound, especially given that the initial design questions are likely to hold conflicting values. Designers of games for girls tend to want to create fair representation of female characters—the characters in the *Team Up!* Game, by Girls, Inc., for example, are simple, diverse looking in terms of ethnicity, and cartoonishly plump. Players, however, used to toys, cartoons, and fashion advertising, can tend to prefer overtly sexualized female characters. Various approaches can work to dissolve the conflict between market drive and team wishes: characters may be redesigned to, for example, avoid human characters with animals and abstract characters, or by treating human characters with an unusual style so they stand out from 'what is out there.' Another example would be violent interaction. While the design team may wish to offer an alternative to violent games as a possible option, players may fervently wish for violence in games, or expect violence as part of any computer game. Here, the decisions are frequently complex, but solutions can include providing several ways of competing, such as substituting intense body action (running, jumping, kicking, sports) in favor of hand-to-hand combat.

Values Trade-offs favor one design choice over another to support a particular value.

Sometimes one value can take priority over another, and do so at the expense of a second. In this example, perhaps offering sexualized characters to attract the players to an educational game would be more preferable than their not

playing the game at all. This would be opportunity for significant team discussion of the values in the project. In cases such as these, usually a middle ground is sought, but at times designers will reach a 'values impasse' and will need to make difficult decisions. Resolving values is, in general, a fiercely difficult problem.

3. Verification

This activity covers the appraisal of whether and to what extent designers have successfully embedded the target values in a given system. Verifying attitudes and beliefs need not be an entire research project on its own, but rather, this process can be embedded into the playtesting and user research that is already being conducted in the course of development.

Empirical methods for verifying attitudes and beliefs can be used to a project's benefit.

Verification strategies for values are likely to resemble those used in the design of more conventional attributes such as functional efficiency and usability, which include critical reflection and analysis, comparison with historical precedent, testing within the design team as well as with third-parties, user studies in controlled settings, formal and informal interview, surveys and so forth. Empirical inquiry is essential in ascertaining whether a particular design embodies intended values. Verifying values' inclusion adds a layer to this process, but in practice, the values merely become another item on the observer/researcher's list of what to look for and ask about. How to gauge whether a system is "privacy-preserving," or "autonomy enhancing," and so forth, can become a part of the process.

Pre- and Post- attitudinal surveys, control groups, play testing, and other methods may be used to get at the heart of a player's experiences in a game. Emerging methods in video analysis and combined qualitative and quantitative methods are also promising. Here, enlisting the aid of a trained social scientist/team of specialists is extremely beneficial to the project so that the questions are phrased correctly and reliable data can be gathered. Pairing with university graduate students interested in researching games would be a step in the right direction for commercial developers on a budget. A survey of what players like and don't like in a game, for example, will be more effective if understood within other questions regarding beliefs, and how one is affected by using the software by comparing responses before and after playing, etc. For RAPUNSEL, we collected data in-game from mouse clicks, code complexity generated by the player, kinds and amounts of items authored, interaction habits, and time on task. We used online surveys to see how players felt before and after using the game.

Preliminary survey results in a study involving over 90 middle school age players, for example, showed a

significant change in general self-efficacy and confidence level about programming knowledge among female players, but not among male players. The next step is to determine exactly which design features might have led to this increase for female players.

Embedding values within technological systems, and verifying that such systems actually reflect those values, is challenging in complex environments such as games. Games provide tricky values cases, and the games developed with values in mind are up against several challenges, not the least of which are the expectations produced by existing commercial games. In the recent assessment sessions for RAPUNSEL, players expressed a desire to kill the characters and enemies discovered in the game. One student asked in near agony of his dancing character, "why won't she die??" In the best of all possible worlds, designers may rely on prior work and compare this work to verify consistent attitudes and beliefs generated from, or fostered with, the project.

Iterative review of values throughout the project may yield more consistent results.

Values work is of utmost importance as computer technologies and games affect larger society. In earlier work, we suggested that verification by means of prototypes was promising, and hold forth that small focused prototypes are key to measuring values in the designs embedded into games. In RAPUNSEL, adding a backpack icon in which players could find their programmed clothes and dances, adding icons to the organizational and code editing windows, and limiting the number of items hierarchically represented in the backpack not only made good design sense, but enhanced project values of self-efficacy and creativity among players in the design partner sessions.

The appearance, attitudes, and actions of characters have significant expressive meaning. Typically, enemies in popular commercial games are depicted as dark "others", whereas heroes tend to look muscular and are often Caucasian. Characters act or speak in ways that mark them culturally and socially, and these markings are likely to influence the way other images and situations are read [36]. RAPUNSEL, designers found that translating equity into particular character representations was a task of considerable difficulty. Through interviews, iterations, and surveys, the balance was struck between the majority of stakeholders' values.

For RAPUNSEL, the team found prototyping to be an essential component in discovering users' beliefs, preferences, and values. They devised and used a variety of prototyping methods, ranging from focus-groups and one-on-one sessions with design partners, to web-based surveys, paper-prototyping, digital mock-ups, to more traditional approaches using test modules implemented in the software. Noting the pleasure users derived from building and

dressing up characters and from manipulating them in the game to engage in relationships with other characters via flirting, dancing and other social behaviors, RAPUNSEL designers inferred users' valuation of creative self-expression, authorship, community, and collaboration.

Long term results of values integration will be more difficult to verify, but are a next step in the evaluation process. What are the immediate and long-term impacts of the value-at-play method on players' attitudes, knowledge, and behavior? Do gender, prior knowledge, design experience, or other variables influence this impact?

CONTEXT: GAMES AND GENDER

There are specific reasons why gender-relevant research helped trigger the development of the framework presented here. For one, because so many people are engaged in playing computer games, games' cultural influence in terms of gender disparity can no longer be ignored. Computer games are still perceived as an arena created by and for men—in fact, the International Game Developer's Association confirmed this in their demographics survey, which noted that women comprise approximately 10 percent of the game development workforce in the United States [20]. Second, our team believes that the lack of values-oriented software environments or environments which embody the ideals of values such as creativity, security, and equity contributes to the large number of females who lose interest in IT fields overall [1,9,13, 21, 37]. We believe this research will be of use to educators and systems designers in the IT field considering game structures in their approach. This research will also be of significant value to scholars interested in the study of technology, society, and humanity [23]. Our goal is to advance this line of inquiry to a pervasive, industry changing, international level of importance that not only promotes the humanistic study of these issues but also enhances real products for real people.

CONCLUSION

Though here we focus on the theme of gender equity, many of the points made in this essay about gender inclusive design also apply to social inclusion at large, and the V.A.P design process could be adopted for these concerns as well. Our goal in terms of game design is to create enjoyable games that support values—and to offer a well-crafted approach to embedding particular values in a given design. While this method may not make sweeping changes in the nature of all computer games, we are striving to put social and political values, where relevant, on the design agenda at a fundamental level.

Because of the popularity of computer games, universities throughout the United States and other parts of the world are creating games-focused degrees. These programs have

become a training site for IT professionals, not all of whom will go into game design as a profession. In 2005, there were over 15 degree programs (BS, MS, and PhD levels) established in the US focused on the development of computer games, and more in the works (notably, Indiana U. of Pennsylvania, UC Irvine, U. of Central Florida, Northwestern, U. of Michigan, U. of North Texas, George Mason U., CUNY, Rensselaer, Purdue and the U. of Washington.). Most of these were created within traditionally scientific and technical degree departments. In addition, many media areas have at least some aspect in the curriculum focused on game design and technology. The proliferation of computer game-focused coursework translates to an opportunity to educate systems designers about values in design before they are employed in the industry. Ultimately, such educated designers will alter the industry from the inside in the years to come.

The contribution our project makes to the next decade of game design is a rigorous, systematic means to meet the goal of taking values into consideration in design at many levels of generality. We do not mean to pit 'concerned citizens' against 'creators,' because many creators themselves *are* conscientious. We see computer games as a compelling entry point and test-bed for integrating values into technology design from the beginning of the process. Experienced designers will recall the not-too-distant past when user interface and usability were, similarly, neglected features of software design. Games are particularly challenging, as we are still at the beginning of an effort to integrate values into the sphere of technology design, especially in the complex field of Game Design, where even conscientious designers who support the principle of integrating values into systems are likely to have trouble applying standard design methodologies to the unfamiliar terrain of values.

ACKNOWLEDGMENTS

We would like to thank the RAPUNSEL team. RAPUNSEL was funded under grant HRD-0332898 from the Gender in Science and Engineering Program (GSE) of the National Science Foundation (Perlin, Flanagan, Hollingshead, Plass). The RAPUNSEL evaluation, conducted by Jan L. Plass, Ricki Goldman, Mary Flanagan, James Diamond, Chaoyan Dong, Suyin Loui, Hyuksoon Song, Christine Rosalia, & Ken Perlin, is forthcoming in several papers, including "RAPUNSEL: How a computer game designed based on educational theory can improve girls' self-efficacy and self-esteem." The Values At Play research was funded by the National Science Foundation Science of Design program in 2006 (Flanagan, Nissenbaum, Catsambis).

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