Desirability, Frameworks, and Socio-Technical Environments for "Want-To" Participation

Gerhard Fischer

University of Colorado, Boulder, USA

gerhard@colorado.edu

Abstract. There is overwhelming evidence that people will become more engaged in working, learning, and collaborating, if they *"want-to"* rather than they *"have-to"* participate in these activities. Frameworks are needed to understand and support the transition from a hierarchically organized, curriculum dominated, plan and push world to a world in which people have possibilities for co-creation and pursuing their interests in the context of personally meaning problems. Based on insight from different fields (including research in behavioral economics, learning sciences and an analysis of success and failure models), design requirements are articulated and analyzed to provide people with more opportunities by redesign working, learning, and collaborating so that they resemble more the success models in which people engage in "want-to" participation.

1 Introduction

Observing and asking people of all ages they *"want to"* build complex artifacts with LEGO, construct model trains, spend time gardening, participate in book clubs, build furniture with Ikea, construct houses for Habitat for Humanities, and contribute to Wikipedia and Open Source Systems whereas they *"have- to"* go to work on Monday morning or attend class in schools and universities. The differentiation stated this way hides the complexities between "have-to" and "want-to": most activities that people do are a mixture of the two objectives (see Fig. 2). While "want-to" activities are not good in an absolute sense, they are credited with allowing people to engage in *flow experiences* [1] by changing (1) alienation to involvement, (2) boredom to enjoyment, and (3) helplessness to control. Flow experiences are not based on a return to the Garden of Eden with a life of abundance free of all work, effort, and pain [2].

The short paper explores the challenges and opportunities offered by new media to increase "want-to" participation. It derives criteria from an analysis of "want to" success models in different domains to design socio-technical environments that have the potential to increase the "want to" experiences of people in working, learning and collaborating.

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2 Challenges and Opportunities

New media provide unprecedented resources and opportunities for individuals to engage in authentic activities, participate in social debates and discussions, create shared understanding, and frame and solve personally meaningful problems. Our research is grounded in the fundamental belief that everyone has *interest* and *knowledge* in one or more niche domains and is eager to *actively contribute in personally meaningful activities* [3]. In contrast to traditional education, which often delivers predigested information [4], the richness of these interests and the passion of the people involved leads to a "Long Tail" distribution of knowledge [5], [6], [7].
Millions of people spend hours every day (1) engaging in personally meaningful activities that they do not bring to work [2]; (2) learn new things with great interest and enthusiasm that they never exercised in schools [8]; and (3) participate and collaborate voluntarily in social production and peer-to-peer activities in cultures of participation [9], [10]. Fig. 1 provides an initial, high-level differentiation between "have-to" and "want-to" activities. The unique opportunity is to create socio-technical environments that would allow more people in more activities and for more time engage in "want-to" participation.

3 Success Stories of "Want-To" Participation

The analysis of success models provides an existence proof to disprove the notion that working, learning, and collaborating must always be less enjoyable than freely chosen leisure [2]. Numerous additional success stories for "what-to" participation exists (that can not be discussed in this short contribution) including: (1) the engagement of people of all ages with LEGO [11]; (2) the participation in Maker cultures [12]; (3) the participation in Computer Clubhouses [13]; and (4) playing computer games with high levels of engagement [14].

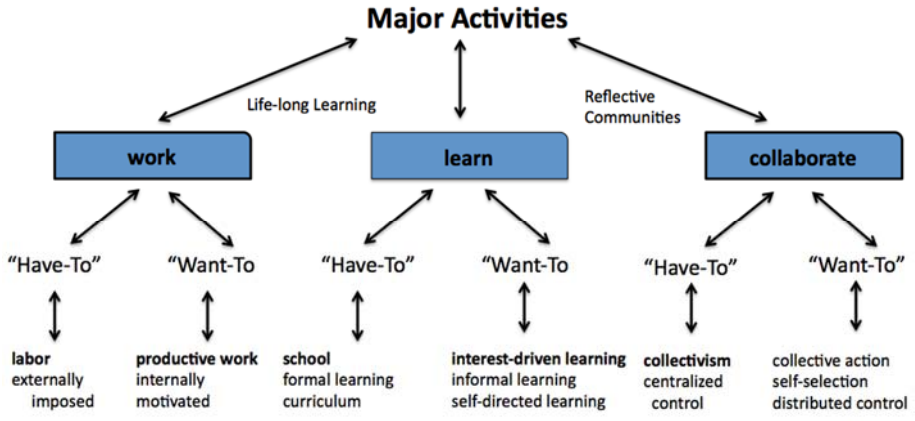

Fig. 1. Differentiation between "Have-To" and "Want-To" Activities

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An Exemplary and Inspirational Example: The "Rocket Boys". The film "*October Sky*" (http://en.wikipedia.org/wiki/October_Sky) (based on a true story) illustrates the many aspects of how passion and self-directed learning can change people's lives. In the film, a personally motivating event (observing the Sputnik in the sky) piques the interest in rockets and space science of four boys in a coal-mining town. The boys pursue this interest and eventually win a major science fair. For all members of the group, this represents a life-changing experience and sparks a desire to go to college and become engineers. The movie illustrates in a unique way the essential aspects of *"want-to"* work, learning, and collaboration:

- *failure* and the *tenacity* to overcome it (e.g., the first few attempts to build a rocket are unsuccessful);
- *inspiration* and *encouragement* (from their high school teacher) are critical factors;
- *help* from people with special expertise and from peers being knowledgeable in different domains; and
- *partial success* (the initial successful launch of a rocket) creates *positive encouragement* and *recognition* by the community (e.g., a news reporter writes an article about their exploration in rocket design).

These supportive aspects are critical to overcome the obstacles that "want-to" participation often faces: in this particular case, the "Rocket Boys" engage in their activities against their parents' wishes. This story is just one of a large number of documented cases that show that life-changing encounters can be found more often in interest-driven, self-directed learning environments than in school environments [9], [15], [16].

4 EUD and Cultures of Participation: "Have-To" and "Want-To" Intertwined

An interview that we conducted some time ago with a geoscientist illustrates how "have-to" and "want-to" are intertwined. He uses a couple of domain-specific software systems to analyze his research data but none of the existing systems can provide complete solutions to his problems as his research unfolds and his understanding of the problem, data, and results proceeds. During the interview, he says:

- "I spend in average an hour every day developing software for myself to analyze the data I collected because there is not any available software" (rationale for doing so: because the is an infinite number of different problems in the world there is a need for an infinite number of software system);
- "Even if there is a software developer sitting next to me, it would not be of much help because my needs vary as my research progresses and I cannot clearly explain what I want to do at any moment" (rationale for lack of external support: ill-defined problems cannot be delegated);

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- *"I spent three months to gain enough programming knowledge to get by (*rationale for learning something new in order "to get by": he is not a professional software engineer and does not intend to become one);
- Software development has now become an essential task of my research, but I do not consider myself a software developer and I don't know many other things about software development"(rationale for acquiring personally meaningful idiosyncratic knowledge to increase his individual autonomy: he has acquired excellent programming skills for solving his own problems and develops software for a larger context rather than the computational artifact itself).

5 Conceptual Frameworks and Socio-Technical Environments Supporting "Want-To" Participation

To make activities conducive to "want-to" participation requires the creation of environments in which people can experience *flow experiences*: the right mixture between the challenges they are facing and the skills that they have [1]. Most human activities will not be pure "have-to" or "want-to" activities, but they represent a mixture of the two experiences (e.g.: (1) as self-driving cars become a reality, different people at different times "have-to" to drive a car as well as "want-to" drive a car).

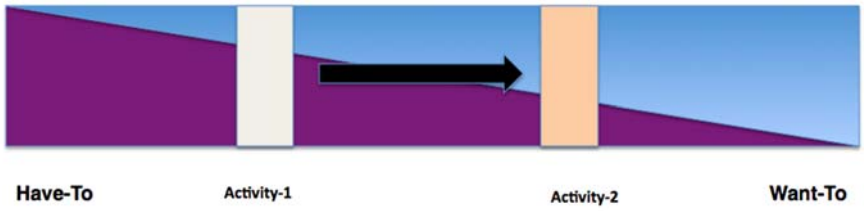

Fig. 2. Creating Support for Moving Activities Towards "Want-To"

An important objective of our research and teaching has been to move activities so they will reside more at the "want-to" end of the spectrum (as illustrated in Fig.-2). Some of the specific mechanisms that we have explored in our research [17] are:

- allow people to engage in working, learning, and collaborating activities that are *personally meaningful* to them [6], [18];
- *eliminate prerequisite skills* (e.g.: by supporting not just human computer interaction but human problem-domain interaction) [19];
- motivate the learning of new skills by supporting *learning-on-demand* and the *integration of working and learning* [20];
- provide *feedback* (with critiquing systems) relevant to the task at hand [21];

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- identify the *right mixture* between self-exploration and self-control and guidance, mentoring, and organizational support for sharing ideas, knowledge, and artifacts [22], [23];
- develop *system architecture*s that provide "low thresholds" to get started but have "high ceilings" to allow people to grow over time [1], [24];
- empower people to actively contribute (grounded in the following observation: "The experience of having participated in a problem makes a difference to those who are affected by the solution. People are more likely to like a solution if they have been involved in its generation; even though it might not make sense otherwise" [25]).

All these research activities explore and support how new socio-technical environments enable people of all ages to obtain more enjoyment and more pleasurable experiences from their activities. One design requirement to create such environments is that they should support "flow" characterized as "a state in which people are so involved in an activity that nothing else seems to matter" ([1], p 4).
Being in a flow state represents a major prerequisite for "want-to" participation. Fig. 3**Errore. L'origine riferimento non è stata trovata.** illustrates that to be in a flow state requires the right mix between challenges and skills. Activities representing challenges too big for existing skills (e.g.: for an inexperienced skier skiing on black slopes) lead to anxiety, and not demanding enough challenges for existing skills (e.g.: for an experienced skier skiing on green slopes) lead to boredom.

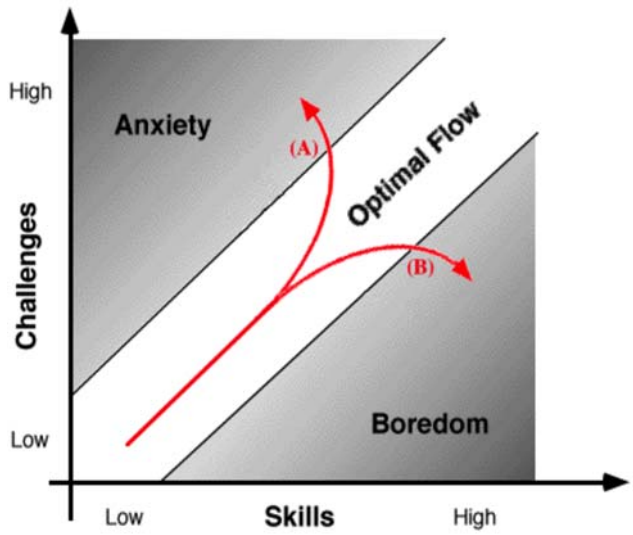

Fig. 3. Optimal Flow — Identifying the Right Balance between Skills and Challenges

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6 Implications

People of all ages spend substantial amounts of time in idiosyncratic, personally meaningful activities with a level of engagement and effort that they do not bring to many working, learning, and collaborating activities. In their work and school environments, many people experience their life dominated by "have-to" participation. The unique opportunity briefly outlined in this contribution is to learn from "want-to" participation in order to create conceptual frameworks and socio-technical environments in which personal experiences are shifted more towards the "want-to" end of the spectrum (see Fig. 2).

Relationship to the CoPDA workshops series. I consider the challenge from "have-to" to "want-to" participation

- an important objective of the overall scope of the CoPDA workshops "Cultures of Participation in the Digital Age", complementing and widening the themes of the three previous workshops;
- an extension of my contributions to previous CoPDA workshops ((1) CoPDA'2013: "Is More More or is Less More? Exploring Frames of Reference for Quality of Life in the Digital Age"; and (2) CoPDA'2015: "Information, Participation, and Collaboration Overload — A Design Trade-Off Analysis"); and
- a central issue for a number of research themes, including *meta-design* (enabling, inviting, and supporting active contributions by all stakeholders) and *cultures of participation* (characterized by productive activities that are voluntary and non-monetary) that we and many others have pursued for the last two decades.

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