Audience in Computer Learning: A Constructionist Interpretation

Gillian R. Hayes[†], Anne Marie Piper[†], Bob Amar[†], Korin J. Bevis[†], Wendy Newstetter[‡] & Amy S. Bruckman[†]
Georgia Institute of Technology, Atlanta, GA 30332
[†]{gillian, amp12, bob, kbevis, asb }@cc.gatech.edu
[‡] Wendy.Newstetter@bme.gatech.edu

Introduction

In 1993, a group of individuals from The Computer Museum, in collaboration with MIT Media Lab, responded to the challenge to close the "digital divide" by organizing a new type of computer center, the Computer Clubhouse, aimed at promoting true "technological fluency," allowing participants not only to consume computer applications but also to create, design, and implement their own ideas through technical mediation (Resnick & Rusk, 1996; Resnick, Rusk, & Cooke, 1998). The Intel Computer Clubhouse network uses a radical constructionist model, advocating learning through working on personally meaningful projects (Harel & Papert, 1991).

To what extent does this model work in practice? In an effort to explore this question, a team of six researchers conducted an ethnographic study of one six months at one site with follow up interviews during the next three months; this "clubhouse" included one coordinator, two assistant coordinators, 8 mentors, and approximately 40 clubhouse members. The team conducted 18 interviews and collected field data for 48 days during the study.

Clubhouse Activities

Typical Engagement in Clubhouse Activities Lacking an Identified Audience

During this study, we observed clubhouse members experimenting with technology by beginning new projects. However, the members typically participated in these activities briefly by themselves and then dismissed them when they seemed to anticipate that the products of their efforts would not be viewed by the members of an audience. Members often started a new project each day. Finished work is rarely saved, or saved only briefly. This discarding of work reduces the complexity of individual projects and opportunities to learn through project work.

Creation of Music and Performing for a Live Audience as a Means of Expressing Self

A clubhouse music studio provides opportunities for youths to work cooperatively to create musical beats, record vocals, and produce demo albums through a technical medium. Youth appear to complete music studio projects with greater cooperation and iteration than other clubhouse projects. Also, the work surrounding music in the clubhouse allows members to use clubhouse resources to receive recognition from a potentially large external audience. This recognition includes praise posted on music review web sites, comments left by visitors to the music group's web site, and verbal recognition from friends. The members working in the music studio appear to anticipate receiving praise, a powerful reinforcer for their behaviors. It motivates them to continue learning and developing their skills for producing music for this approving audience.

Throughout our observations, activities that seem to foster the most sustained effort and cooperation are those that involve participation in the greater community outside of the clubhouse. We noticed that members respond to the anticipation of immediate praise provided by a live audience, as evidenced by their increased levels of motivation prior to live audience events. Local face-to-face events held at the clubhouse appear to provide some of the same motivational benefits. During our period of observation a Parent Appreciation Night and a Talent Show were planned. Directly prior to these events, clubhouse activity increased, and youths worked together on projects.

Conclusion

Although we cannot determine a formula for successful projects, one feature seems important: from a radical constructionist perspective, the concept of an appreciative audience for completed work appears to play a strong, positive role in initiating and sustaining learning.

References

Harel, I. & Papert, S. (eds.) (1991). *Constructionism*. Norwood, NJ: Ablex Publishing.

Piaget, J. (1962). *Comments on Vygotsky's critical remarks concerning 'The Language and Thought of the Child' and 'Judgment and Reasoning in the child'*. Cambridge, MA: MIT Press.

Resnick, M. & Rusk, N. (1996). The computer clubhouse *IBM Systems Journal, 35* (3-4), 431-440.

Resnick, M., Rusk, N., & Cooke, S. (1998). The computer clubhouse. In D. Schon, B. Sanyal, and W. Mitchell, *High Technology and Low-Income Communities*, 266-286. Cambridge, MA: MIT Press.