

# Learning Sciences in Social Exclusion Contexts: the Affordances of the Digital Medium

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**Abstract:** This paper describes and discusses the work that we have developed in contexts of social exclusion to support learning to advance the process of social inclusion. The work have been developed through a series of projects in various social exclusion contexts in which different aspects of learning science concepts are incorporated into the work, as well as different levels of digital technology complexity. The projects explored the role of the context and of the constructive activity in learning to promote social inclusion through digital literacy, and explored the situativity of learning in contexts of promoting social inclusion through the use of cinema narratives. The long term objective of the work is to find ways of creating productive learning environments for promoting social inclusion.

## Introduction

In this paper we briefly describe and discuss some projects that are representative of the work that we have carried out in the last ten years with the aim of finding ways of creating productive learning environments for promoting social inclusion. Here, the “learning environment” is defined by the set of learning concepts addressed and the set of tools used to support learning activities within the environment. In particular, the use of the digital medium, in its several forms, has been a central issue, as well as the use of learning perspectives that are in line with constructivist views of learning. In addition “promoting social inclusion” is mostly viewed as a process constructed by the participants. In this way, the work have been developed through a series of projects in various social exclusion contexts in which different aspects of learning science concepts are incorporated into the work, as well as different levels of digital technology complexity. For example, at a certain point of this continuum, we may have gradually introduced a substantial body of learning science concepts and may have been able to incorporate in the digital medium technologies of artificial intelligence in education.

Therefore, in the next sections we describe four of these projects, presenting the characteristics of the social context and the learning program or activity that we have developed with people of that social context. The projects presented are divided into two categories, although there are several points of contact between the projects in each category. In terms of the continuum mentioned above, the second category came after the first and added new perspectives to the work, notably the use of cinema narratives.

It is clear at this time that there is much to be done in terms of unraveling the affordances of the digital medium for the application of learning science concepts in helping to transform contexts of social exclusion. Therefore, in the final section we outline a preliminary view of what needs to be pursued to advance in this direction, from the perspective of the learning science concepts addressed in this paper.

## Context and constructive activity in promoting learning for the social inclusion of marginalized communities

At a time in which programs of digital literacy focused mostly on teaching people how to use the computer and the internet, the project described below, carried out in rural areas, addresses the connection of digital literacy to social inclusion. A fundamental issue of this approach is the social contextualization of the digital literacy, which contributes to increase the social relevance of the digital literacy program, and opens more opportunities for the community to achieve social inclusion.

The approach addresses the issues emphasized by constructivist theories of learning in relation to the role of the context in learning and the fact that learning involves active construction. According to these theories, learning develops from constructive activities in a context which is an integral part of what is learned and is what makes learning meaningful (Brown, Collins & Duguid, 1989; Lave & Wenger, 1991; Greeno, 1998). Besides, these theories have emphasized the social nature of learning (Vygotsky, 1978; Palincsar, 1998). Processes of participation, mediation and interaction in community are some of the notions which result from a view of learning as a social process. As a consequence, learning for social inclusion is seen much more as coming from the construction of and participation in a community of knowledge rather than from the acquisition of a body of knowledge.

Furthermore, situating learning for digital literacy in the social context of the students help them to understand the generative power, in their social context, of the knowledge that is being learned, rather than just learning what this knowledge is (Greeno, 1989; Bednar et al, 1992).

Below we describe two projects of digital literacy that addressed these views, situated in the contexts of rural settlement communities, and underprivileged urban communities. In these projects, the digital literacy programs helped to address issues of social exclusion in rural areas, and of digital activism in urban areas.

### **Digital literacy in social contexts: Building learning portals to address the structure of social exclusion contexts**

Working to promote the inclusion of rural school students in the digital medium, we have developed the methodology of digital inclusion in social contexts (Akhras, 2011). According to this methodology, learning for digital inclusion is situated in the social context of the community and is based on authentic activities of project development for the internet that are meaningful in this social context. In this way, the students learn to use the internet not only as simple users but creating content to express relevant aspects of their social context.

This makes them capable of expressing themselves in a language used to create content for the internet (a markup language), turning them into independent constructors of the contents that are relevant for the social inclusion of their community. The methodology is based on the HTML language, as it is a simple and free language, and allows exploring several structures and media to express the contents (like text, image, video and navigation links). In addition, the use of audiovisual media facilitates the representation of aspects of the social, cultural and physical context.

Overall, an important aspect of this independence is that, creating content for the internet about themes that are relevant for the social inclusion of their community, the students become authors of the knowledge that can transform the life of their community, and this brings empowerment. In addition, this creates conditions for the members of the community to become independent learners, capable of taken responsibility for their own social and digital inclusion (Akhras, 2011).

In summary, the project includes three phases: In the first phase, the students of the rural school learn how to create websites using the basic constructs of the HTML language (e.g. creating text, insert images, creating links, and so on).

In the second phase, the students developed a field work visiting rural settlements, taking pictures of representative aspects, according to their views, of their physical, social and cultural context. They also talked with the farmers to obtain information about the subjects they intend to address. Some examples of the subjects addressed by the groups are: transportation, drought, rain, burnings, and cattle.

In the third phase, the information obtained together with the pictures taken constituted the student's analysis of their social context, according to the subject each group addressed. Then they used their knowledge of creating websites to construct a pilot of a learning portal in the themes documented by them. Discussing the situations represented in the pictures, which compose the content of the learning portals developed by the students, they have the opportunity to explore their own ways of expressing their views about the issues discussed in the portals they created. Therefore, the program of contextualized digital literacy constituted a constructive and authentic environment for the discussion of issues related to the social problems faced by their community.

### **Bringing the cinema into play: A literacy in public policies**

In the same line of the previous project we have developed a digital literacy program focused on preparing students of underprivileged communities to the digital activism (Camargo & Akhras, 2012). In this project, in addition to learning how to create websites, the students participated in a workshop on public policies which used films to promote the discussion of issues associated with social mobilization, including the notions of politics, power, state, government, and public policies. Several short and full-length films were shown, including TV debates. In addition, before going to the field work the students participated in a media literacy workshop in which they got in touch with issues of media language and also learned techniques of producing documentary films. Then, the field work involved, as before, the collection of information from the social context, made in this project through the production of a documentary film addressing a particular social problem that was affecting their community (the bad conditions of the streets, which were causing many car accidents and dangers for the population). Finally, the website they constructed at the end of the project described the mobilization strategy created by them.

This project added to the previous one the issue of using films, which was a way of addressing more comprehensively the contextualization of the literacy in digital activism, and also a way of addressing the constructivist perspective in multiple forms, producing a documentary and also constructing a learning portal to convey a strategy of digital activism.

## **The situativity of cinema narratives in promoting learning for the social inclusion of disadvantaged isolated individuals**

In order to attend a call for projects focused on the development of studies about crack users, we have developed a project aimed at producing a contextualized study about the use of crack from a program of media literacy for social transformation.

The notion of media literacy for social transformation was derived from the notion of media literacy. The objective of media literacy is to teach the children the language of films, television and advertising, in order to prepare them to understand the message that comes from the use of these languages in various society contexts, and with various purposes (Jolls & Thoman, 2007). On the other hand, the objective of media literacy for social transformation is to go a step further and involve the children in the analysis and discussion of audiovisual products that address issues of their social context. This will lead them to reflect on these issues and, ultimately, prepare them to understand the social transformations that are needed in their social context with regard to these issues, and how these social transformations can be produced. At the end of the day, the main purpose of media literacy for social transformation is to empower the children to use the expressiveness of the audiovisual language to construct their own understanding of their social reality, so that they can find their own ways of transforming this reality (Akhras, 2010).

The central point of using films is to address the situativity of learning from cinema narratives to promote awareness and social transformation in a social context. Cinema narratives allow the learners to address the social, cultural and physical dimensions of the knowledge that is relevant for their learning, which is represented in the film.

The situativity of knowing and learning is one of the main principles of the theory of situated cognition, which posits that social contexts shape cognitive activity (Resnick, 1996). In addition, although not explicitly addressed by situated cognition, the issue of time is very important in this context of using cinema narratives. This issue was addressed in a work focused on the study of psychological and environmental aspects of phenomena in an integrated way, the transactional perspective for research and theory in psychology, proposed by Altman and Rogoff, (1987). They consider not only the relations between individuals and their environments, but also the temporal qualities of these relations, which, according to their perspective embodies the flow and dynamics of the individual's relations to social and physical settings. This is significant when we think of a learning process connected to cinema narratives, and also when we think of constructivist theories of learning, which maintains that the construction of knowledge occurs over time from the learners' attempts to connect their previously developed experiences to the new ones (von Glasersfeld, 1995).

In cinema narratives, we have complex situations embodying the content and dynamics of the characters' relations to social and physical settings developing over time. Although time is part of the constructivist emphasis on the process (Jonassen, 1992; Fosnot, 1996), putting cinema narratives at the center of the learning process leads to a broader sense of process, one that includes the physical and social context of activities and their temporal qualities, which is more in line with the views of Vygotsky (1978), who advocated a method of research that emphasized the study of process and the inseparability of aspects of human-environment interaction.

Therefore, a view that can support this perspective, suggested by Resnick (1996), is that learning occurs when prepared cognitive structures resulting from past engagements in culturally specific situations (and we may include socially specific) constrain the way in which individuals enter new situations. Learning, thus, is a matter of passing through successive situations in which the individual interacts and becomes competent (Resnick, 1996).

With regard to this "interaction", according to Piaget, one of the aspects that characterize the meanings of knowledge objects is the action of utilizing them, or "what can be done" with them either physically or mentally (such as classifying or relating them), among other aspects (Piaget & Garcia, 1991). This view may help to investigate aspects of the mental interaction of the learners with the film and how it can be supported, which is related to the issue of knowledge construction from films, which is an issue addressed by cinema studies (see below).

Another concept that is central to this work is the concept of affordances, proposed by Gibson (1979), which addresses the inseparability between contexts and psychological processes in the phenomena of perception. According to Gibson (1979), the affordances of an environment are what it offers to an organism, such as the opportunities for actions or the dangers that exist in an environment for an organism. This can be taken in a broad sense as, according to Sanders (1997), the environment in which affordances present themselves to human beings is extraordinarily complex and may consist of physical, symbolic, and even purely imaginative and conceptual components.

An important aspect of affordances interpreted as significances-to-the-organism in the environment is its dynamic character, i.e., affordances that were not present at a certain point may become present after the organism grows, matures, and learns. In general, we can say that after certain interactions between the organism and the environment, affordances that were not present before might become present, as well as some affordances that were present might not be present anymore (Sanders, 1997). This aspect indicates the potential of a process of learning based on the use of cinema narratives to promote social transformation. As Resnick (1996) points out, "learning and development occur when individuals prepared for certain concepts encounter environments with the kinds of affordances they need to elaborate these prepared structures" (p. 39).

For example, in a study to illustrate his work on cognitive flexibility theory, Spiro has explored the thematic structure of the film *Citizen Kane*, finding out, for example, that the film supports multiple interpretations, and that the interpretations combine and interact and take on varying senses in different contexts, showing that the film can be a rich source of study for its complex domain if these ill-structurednesses of the theme of the film are properly addressed (Spiro et al, 1991). In a similar line of thought, addressing the use of films as an important resource for classroom learning in the domain of history, Zahn et al. (2010), have explored the use of video tools to enable users to extract, rearrange and comment on scenes in order to support learning in this domain.

Therefore, according to the interdisciplinarity of the work, it may be worth exploring the perspective of cinema studies. We may address, for example, issues that have been considered by cinema theories which investigate how people assimilate film narratives (Stam, 1980). These studies have also considered the issue of representation in film. According to Sorlin (1977), the film represents a configuration of images, expressions and judgments that may not find a precise description and remain out of the formulated discourse. For him, the cinema is at the same time repertoire and production of representations of this sort that circulate in a social formation, composed by images which are tied together around a certain notion (of factory, work, field, city, etc.). Furthermore, as pointed out by Turner (1993), the cinema acts over the systems of signifiers of a culture. These studies may illuminate further points of investigation with regard to the whole issue of promoting learning from cinema narratives in contexts of social transformation.

Below we describe two projects of using cinema narratives for learning, situated in the contexts of youngsters in privacy of freedom (addressing issues of drug addiction) and of children with special needs, including Down Syndrome and other mental disabilities (addressing issues of social behavior).

## **Media literacy for social transformation: Understanding the situativity of drug addiction contexts**

Exploring the use of the audiovisual language to stimulate the discussion of issues of social relevance and promoting learning about these issues, we have developed a program of media literacy for social transformation focused on the use of crack (Akhras et al, 2014). Making possible the discussion of issues associated to the use of crack with at risk youngsters, the program also intends to produce an analysis of various aspects related to the use of crack, including: social situation, values and profiles of users, patterns of involvement with crack, vulnerabilities and their origins, and opportunities for the transformation of patterns that lead to the use of crack. Following this perspective, the project explored the use of films to raise awareness of youngsters in privacy of freedom that are at risk of being involved with drugs.

The methodology is based on the analysis of cinema narratives. Watching short and full-length films the participants are involved in a process in which they, first, acquire a film literacy focused on becoming able to observe and discuss several aspects of the audiovisual language and the different contexts in which it is used. In this phase, the films showed are provocative but are not directly related to the issue of drugs.

In the second phase of the program, the focus is on the analysis and discussion of films which address more explicitly issues of realities associated with the use of drugs, exploring connections with the social context of the youngsters. Initially, the films showed address issues that provoke reflections about the society, than the subject of drugs is gradually introduced showing some parts of documentary and fiction films. For example, after exhibiting some of the films it was possible to carry out a discussion with the participants about issues like: drug trafficking, lack of perspective of youngsters, lack of parental support, drugs as elements of physical and psychical destruction, destruction of the social and professional life, how the addiction is maintained, crimes to sustain the addiction, and so on.

At the end of the program, the learners were asked to construct a script for a film about drugs using all that they have learned in the films that they watched and in the analyses they carried out, making reference to situations that they have experienced in their real life. They had to create a story with characters and a message.

This project helped to address the situativity of learning from cinema narratives. The configuration of images, expressions and judgments that constitute the film content and narrative, as described by Sorlin (1977),

can be represented as the situations and sequences of situations that the learners will encounter in their learning process. These situations will offer to the learners a set of affordances, according to the views that they bring to the learning activity, which may provide opportunities for discussing the society in its social, political, cultural and human dimensions and of developing a critical and transforming view in all these dimensions.

### **Media literacy for social inclusion: Understanding social behaviors**

Working to explore the use of digital technologies to improve the mental and social development of children with special needs, we have developed a project that uses cinema narratives in order to prepare these children for interacting in society, facilitating their social inclusion (Soto & Akhras, 2013). The objective was to promote the development of a kind of “literacy in social behaviors” which could make it easier for these children to understand the behaviors of other children and communicate with them.

The children that participated in the program are between eleven and eighteen years old (65 children as a whole). They had Down Syndrome or other mental impairment. Among the factors that can inhibit learning, we can include: difficulties with language and discourse, deficit of short term auditory memory, short concentration capacity, difficulties in retaining and consolidating content. On the other hand, among the factors that can facilitate learning we may expect that children with Down Syndrome have the following abilities: learn to use signs, gestures and visual support; imitate the behaviors of adults and colleagues; learn from hands-on activities; and although they may have vision problems, they may demonstrate a visual recognition ability.

Therefore, one of the objectives of the program was to see how the use of audiovisual materials and the digital medium could improve these children’s learning, leveraging the factors that can facilitate learning.

In each session a film was exhibited (mostly a short film) and afterwards the children developed several kinds of activities related to the film they watched, using materials and approaches like: modeling clay, color pencil, finger painting, digital board, domino (generated according to the theme of the film), puzzle, scene cards, cartoons and crayon.

Each session addressed a subject that may constitute the children’s literacy in social behaviors. As a whole, fifty three subjects were addressed, including, for example: friendship, prejudice, confidence, pride, curiosity, memory, bullying, exclusion, literacy, poetry and art.

After watching several short films that address these subjects, the children developed several activities using the materials above and were stimulated to discuss the subject. The films were full of situations, including, as suggested by Sorlin (1977), representations that circulate in a social formation, composed by images which are tied together around a certain notion, although here, instead of notions of factory, field and so on, the focus was on notions of friendship, prejudice, pride, exclusion, poetry, art, and so on.

At the end of the project, three main aspects that were strongly reinforced, are: first, the clear individuality of each child, second, the variety of stimulus that are needed to reach the children, and third, the effectiveness of using audiovisual resources and digital technologies in the development of the children, increasing the motivation for learning, and providing a learning environment capable of portraying situations that bring to the learning activity issues of the real world.

### **Conclusion**

The work described in this paper touches on many issues of learning science research in connection with learning to promote social inclusion supported by the digital medium, including: context, constructive activity, community of knowledge, social context, participation, social process, situated cognition, authentic situations, cinema narratives, situativity, time, affordances, digital and other literacies, and digital narratives. In particular, the projects discussed in this paper were more deeply connected to three learning science developments: the role of the context in learning, the constructive nature of the learning activity, and the situated nature of cognition.

Further work may involve a deeper investigation of all these issues, going from general learning science concepts to more contextualized learning science developments situated in social exclusion contexts, and working to improve our understanding of social exclusion and inclusion, and of how the learning sciences and the digital medium can help in moving from one to the other.

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## Acknowledgements

Thanks are due to the National Council of Scientific and Technological Development (CNPq) and to the Sao Paulo State Research Support Foundation (FAPESP), Brazil, for sponsoring the research reported in this paper.