

DECIDIX: meeting of the Paulo Freire pedagogy with the serious games in the field of health education with adolescents

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Abstract *Introduction: Health education with adolescents is a challenge. Serious games are considered strategic tools, and their effectiveness is related to the pedagogical model adopted. Health education can promote leadership and autonomy, especially since is based on Paulo Freire's Pedagogy as the theoretical foundation. Objective: To analyze the contributions of the DECIDIX serious game for educational purposes, supported by Paulo Freire's foundations, applied to health education with adolescents in the sexual and reproductive field. Methods: Data were acquired through the validation of DECIDIX, which was carried out in two stages: i) with adolescents, and, ii) with health and education professionals. Data were registered through an audio recording of interventions; focus group; interviews and (participant and non-participant) observation. Also, data were qualitatively coded and categorized. Theoretical approach: Paulo Freire's theoretical foundations supported both, DECIDIX development and the analysis of its effectiveness. Results: DECIDIX is a tool that assists the educator in educational activities using Freire's constructs, aiming the establishment of horizontal and dialogical relationships between educators and adolescents, and also, promoting experiences to develop critical reflection and autonomy.*

Key words *Health education, Games, Adolescent, Sexual and reproductive health*

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Introduction

Health promotion is a challenge to daily routine services¹. In these settings, health education, one of the primary health promotion-enabling devices, often addresses issues through vertical methodologies that do not consider the experience and prior knowledge of individuals, distancing themselves from the process of shared knowledge construction and knowledge exchange². Adolescents can consider these practices as meaningless and not conducive to adherence to healthier living habits³.

A new proposal for comprehensive health care, which includes health education, advocates actions geared to citizenship and the role of adolescents in this field⁴. This perspective is consonant with Paulo Freire's Pedagogy, which focuses on the educator-student dialogue, in a horizontal, ethical and affective educational practice towards their humanization. Dialogic education uses content related to the lives of learners and thus becomes involved by meanings. This process stimulates students' interest in actively participating in decisions, enhancing the process of building autonomy⁵⁻⁷.

In this context, serious games (games that are not restricted to entertainment, but that provide meaningful experiences and learning) can contribute to the achievement of specific pedagogical objectives in health education activities, since they are configured as a participative methodology and motivating for adolescents^{8,9}. However, although serious games are considered instruments to address several issues, including sexuality, few studies cover this subject, and the pedagogical aspects involved⁹⁻¹¹.

This study aimed to analyze the contributions of the serious game DECIDIX for the development of educational actions supported by Paulo Freire's reference in the field of sexual and reproductive health education with adolescents.

DECIDIX

DECIDIX is a digital game developed by the Center for Studies and Research on Vulnerability and Health in Childhood and Adolescence (NEPVIAS) of the Federal University of Pernambuco (UFPE). The game targets adolescents (11-19 years old) in actions to promote sexual and reproductive health, and mainly aims to promote reflection on affective and sexual relationships that may culminate (or not), from a gender perspective, in an unplanned pregnancy.

The game scenario simulates the interface of an instant messaging application in which a teenage character initiates a chat with one of his/her contacts about an affective/sexual situation he/she is experiencing with another adolescent. The contact represents the group of adolescents who are playing. During the game, participants discuss and jointly choose the course of action that the characters should follow in the story. Several issues, such as liability for contraception, sexuality, gender issues, consequences and responsibilities in an unplanned pregnancy, among others are questioned. Some fundamental questions are presented to the students throughout the story to facilitate the approach of themes and are an optional resource for the educator. At the end of the game, players are invited to back into the story and to rebuild and establish more critically a new ending for it (Figure 1).

DECIDIX was designed to be used in collective actions mediated by an educator who was pedagogically backed by Freirean Pedagogy principles, with emphasis on building horizontal relationships between educators and learners through dialogue; building relationships based on ethics, mutual respect and affection, strengthening the educator-student bond and the construction of learning experiences that contribute to the autonomy of the stakeholders involved in sexual and reproductive health. The final version of the game, as well as the accompanying supporting material can be requested for free by email: nepviasufpe@gmail.com.

Methods

This study is part of the project "Development and evaluation of educational games in digital media aimed at promoting adolescent sexual and reproductive health". The data shown were obtained during the validation¹² of the DECIDIX game, in two independent and concomitant stages: 1) validation with adolescents; 2) validation with health and education professionals. The two stages were approved by the Research Ethics Committee (CEP) of the Federal University of Pernambuco (UFPE).

In Stage 1, actions with DECIDIX were conducted by researchers in two public schools with the participation of 36 adolescents aged 11-19 years. Theoretical saturation defined the number of participating adolescents. Each group of adolescents participated in the activity, answered a quantitative validation questionnaire and was



Figure 1. DECIDIX Windows.

Source: Prepared by authors.

included in a focus group in which they pondered on the educational experience. The interventions and the focus group were recorded and transcribed. Also, participant observation (made by inside researchers) and non-participant observation (made by external observer to the conducting team) were used in data collection. They used a script that directed the recording in a field diary, relating the experience or not of the pedagogical presuppositions (advocated by DECIDIX) during the activity.

In Stage 2, activities were conducted by 18 health and education professionals who had previous experience with adolescents and affinity for participatory methodologies. They were identified by convenience according to established inclusion criteria and through the “Snowball”¹³ technique. The number of participants followed Pasquali’s recommendations¹⁴. Educational actions were held in the professionals’ workspaces. The game support material (with content on the subject and pedagogical assumptions) and the DECIDIX file were made available for previous independent exploration. At the date and time scheduled by the professionals, they conducted interventions mediated by DECIDIX that were monitored by the researchers through non-participant observation recorded in the field diary. After the activity, the professionals answered a quantitative validation questionnaire and participated in a semi-structured interview that focused on the educational experience.

Considering the purpose of this paper, our data analysis corpus consists of: i) qualitative data

from transcripts, field diary and focus group with the adolescents, and ii) interviews and field diary referring to the interventions conducted by the professionals. Data were initially compiled, submitted to decomposition and coding procedures with the help of *Atlas.ti* for Windows software version 7.0¹⁵. Then, recombination procedures were carried out to create themes guided by the identification of the approximations or distances with the Freirean content that underpinned the elaboration of the game.

Confidentiality and anonymity of the participants were assured through identification codes, as follows: “A”: Adolescents; PS: Health Professional, PE: Education Professional. Also, acronyms were used concerning the origin of the data: I: intervention; GF: focal group; DC: field diary, E: interview. The numbers used indicate the sequence of obtaining the data.

Results and discussion

In Stage 1 of the study, 36 adolescents were divided into five educational actions conducted by the researchers (Table 1 and Chart 1). Eighteen professionals participated in Stage 2, of which 10 of health and 8 of education (Chart 2).

The professionals conducted 12 educational actions mediated by DECIDIX, in which 248 adolescents participated. The actions were developed mainly in public schools and with a varying composition in the groups regarding the number of participants and division by gender (Chart 3).

The process of data analysis deriving from the 17 educational sections using DECIDIX resulted in 4 themes that dialogue with the Freirean reference: approach of adolescents' daily life; mediation of critical reflection processes; educator-learner relationship; and promotion of emancipatory learning and experience.

The approach of adolescents' daily life

Professionals and adolescents agree that the situation discussed in the game is present in the context of young people's life. It was identified during the activities reports of own similar situations or experienced by relatives.

I liked it... the theme it brings is within the very experience of adolescents, and it instigates them

to bring it into their world. Your self. Your life. (E; PS4)

They brought examples of cases of people who were known, who were going through this situation. (DC, I5)

This happens a lot with us ... (A7; GF2)

Researchers focused on bringing the content closer to the daily reality of adolescents, building the story from several reports repeatedly accepted in previous experiences¹⁶⁻¹⁹ to ensure coherence of DECIDIX with Paulo Freire's pedagogical principles⁵⁻⁷.

Freire⁵⁻⁷ advocates that educational actions question real-life situations to allow critical reflections that contribute to reality transformation processes, since men and women are understood as actual beings making history, and conditioned

Table 1. Characterization of adolescents participating in Stage 1.

Grade	Girls	Mean age girls	Boys	Mean age boys	Number of participants in the game
8 th grade	8	13.5	10	13.2	18
9 th grade	5	15.4	3	16.3	8
10 th grade	6	15.6	4	15.2	10
Total/ Mean	19	14.8	17	14.9	36

Source: Prepared by authors.

Chart 1. Characterization of educational actions with adolescents (Stage 1).

Grade	Responsible for conducting	Location	Adolescent age range	Number of adolescents	Gender of adolescents	Action mean time
8 th Grade	Researchers	Municipal Public Elementary School	13 and 14 years	8	Male	1 h and 30 min
8 th Grade	Researchers	Municipal Public Elementary School	13 to 15 years	10	Both	1h and 45 min
9 th Grade	Researchers	Municipal Public Elementary School	15 to 17 years	8	Both	1h and 40 min
10 th Grade	Researchers	State Public High School	15 and 16 years	3	Male	1h and 35 min
10 th Grade	Researchers	State Public High School	15 to 17 years	7	Both	1h and 30 min

Source: Prepared by authors.

Chart 2. Characterization of the health and education professionals participating in Stage 2.

Category	Work area	Age/Gender	Already used participative methodology	Work location	Length of service
PS1	Occupational Therapist	34 /F	Yes	NASF	8 years
PS2	Nutritionist	32/F	Yes	NASF	6 years
PS3	Nutritionist	34/F	Yes	NASF	9 years
PS4	ACS	41/F	Yes	USF	15 years
PS5	ACS	56/F	Yes	USF	15 years
PS6	ACS	40/F	Yes	USF	10 years
PS7	ACS	35/F	Yes	USF	14 years
PS8	Psychologist	31/M	Yes	NASF	2,5 years
PS9	Nutritionist	27/F	Yes	NASF	6 years
PS10	Psychologist	27/F	No	NASF Resident	3 months
PE1	Biology teacher	27/F	Yes	State Public Elementary and Secondary School	8 years
PE2	Portuguese teacher	28/F	Yes	State Public Elementary and Secondary School	9 years
PE3	Biology teacher	42/F	Yes	State Public Elementary and Secondary School	10 years
PE4	Mathematics teacher	31/F	Yes	State Public Elementary and Secondary School	6 years
PE5	Biology teacher	33/M	Yes	Reference State Technical Public High School	14 years
PE6	Physical Education teacher	34/M	Yes	Reference State Public High School	10 years
PE7	Biology teacher	25/M	Yes	Private Elementary and Secondary School	7 years
PE8	Biology teacher	35/F	Yes	State Public Elementary and Secondary School	11 years

PS: Health Professional; ACS: Community Health Worker; NASF: Family Health Support Center; USF: Family Health Facility; PE: Education Professional.

Source: Prepared by authors

by life contexts and facts, but not determined by them.

By proposing, through DECIDIX, the problematization of situations that resonate with their own or known experiences, we assume that adolescents, especially those who are in situations of social vulnerability, coexist with factors that mark their lives adversely. But, they also carry with them the transforming potential.

However, specifically in one of the actions performed in a private school, some young people pointed out that the onset of sexual life at 14 years and the situation of adolescent pregnancy (situations set by the game) were not frequent in their life scenarios. The educator accepted

and questioned this statement, which resulted in the revision of the first perspective of distancing from this reality.

In one of the moments of the game that talks about having sex as proof of love, one of the adolescents says: But wait a minute, she's already going to have sex with him? She is only 14 years old. Moreover, then the teacher questions by saying Right. However, [NAME], many girls are already pregnant at this age. They are already mothers. Even if you do not know, [NAME], and are not part of your environment, of the people you are accustomed to, this happens. Also, then one of the adolescents in the room says she knows two teenagers who became pregnant at that age. (DC, 15)

Chart 3. Characterization of educational actions of health and education professionals (Stage 2).

CAT.	Responsible for conducting	Location	Adolescents age range	Number of adolescents	Adolescents gender	Mean action time
AS1	PS9 and PS10	Municipal Public Elementary School	11 to 13 years	5	Female	50 m
AS2	PS7	State Public Elementary and Secondary School	7th grade (11 to 14 years)	G1: 12; G2: 20	G1: Female; G2: Male	G1: 40m G2: 50m
AS3	PS4	Integrated Health Center (Group of adolescents)	11 to 19 years	6	Both	1h 20m
AS4	PS1 and PS2	State Technical High School	11th grade (14 to 17 years)	45	Both	1h 10m
AS5	PS3 and PS8	Reference State Technical Public High School	14 to 17 years	18	Female	2h 25m
AS6	PS5 and PS6	Community Evangelical Church (Adolescent Group)	11 to 15 years	4	Both	1h
AE1	PE1 and PE2	State Public Elementary and Secondary School	12th grade A and 12th grade B (16 to 19 years)	42	Both	1h
AE2	PE3 and PE4	State Public Elementary and Secondary School	6th grade (13 to 14 years)	15	Both	40 m
AE3	PE5	Reference State Technical Public High School	10th grade (15 to 16 years)	40	Both	35 m
AE4	PE6	Reference State Technical Public High School	11th grade (16 to 17 years)	14	Female	50 m
AE5	PE7	Private Elementary and Secondary School	8th grade (13 to 14 years)	19	Both	35 m
AE6	PE8	State Public Elementary and Secondary School	8th grade (13 to 14 years)	13	Both	20 m

AS: Health Action; PS: Health Professional; G1: Group 1; G2: Group 2. AE: Education Action; PE: Education Professional.
Source: Prepared by authors.

Although the influence of the socioeconomic issue is actively present in the analysis of adolescent pregnancy, we understand that it is a complicated and multicausal phenomenon that includes factors such as early menarche, adolescent subjectivity, poor or no information regarding contraceptive methods, gender issues, among others^{1,4,20,21}.

Thus, we can observe that the educational experience with DECIDIX favored the construc-

tion of a new perspective for ideas shared by the group, facilitated by invitation made by the educator so that young people “re-view” their daily life and realized what before was present but not seen, which can exemplify a situation of a first stage of awareness in the educational process advocated by Paulo Freire^{5,6}.

It is noteworthy that both adolescents and professionals point out that the approach of DECIDIX to the daily adolescent, and consequent

immersion in the game, occurred not only vis-à-vis the content, but also the language used by the characters and the game's format (simulating a messaging application).

A 27: *It seems that the game was for real [...] because it sounded like a WhatsApp conversation.*

A 23: *as if one had a friend in person, really asking for an opinion, but in the game...*

A 19: *[...] Now it's all computer stuff.*

A 20: *The thing now is mobile. (GF, G4)*

[...] it is their daily life now, present time, even if this is an online conversation. They talk about everything [...] it was as if they were on their cell phone... and they had to respond ... and they would respond whatever was on their mind and this happened. (E; PS2)

According to Bowen et al.⁸, the use of digital technologies, especially enhanced by the smartphone, is a feature of Western society and common during adolescence, reflecting the potential of bringing health education closer to this audience with digital technologies.

A distinction is made between DECIDIX and digital games, usually used individually or with virtual interactions since it is proposed that the game be "played jointly" and mediated by an educator. Freire⁶ says that dialogue is the essence of liberating education and is built horizontally on the relationship between the people involved. Thus, when proposing the use of a tool that is part of the daily life of adolescents, the educator shows his willingness to build a closer relationship with this audience.

Mediation of critical reflection processes

In the activities, we realized that the experience of DECIDIX facilitated the reflection and deconstruction of ideas that expose young people to vulnerabilities and risks in sexual and reproductive health. PS and PE point out that the game's format to bring the questions first and then the possible alternatives to be chosen stimulated the debate and the questioning of the contents.

Illustrating and corroborating this possibility, adolescents report that from the story and the debates, the importance of prevention through the safe use of contraceptive methods was evidenced and this contributed to their reflection on future attitudes to avoid making the same mistakes characters made and prevent unplanned/unwanted pregnancy. Professionals emphasize that adolescents in the community changed their choices in the game, opting for actions that reflected more critical and healthy attitudes.

One must see whether the object of prevention or contraceptive that the person, one of the two used, is... [...] safe or not. (A2; GF1)

[...] Imagine a colleague needing support, and he gives that answer. Without stopping to think, without anything. That's what he did. After he stopped, saw someone else's opinion. Then he backed off and gave another answer... (E; PS6)

The educational experience has also provided increasingly critical reflections on gender concepts, mainly regarding the identification of experienced inequalities, their explanations and possible attitudes that could contribute to change processes.

I thought it was fruitful that they reflected. If they did not, they suspected something and kept it for further reflection later. In fact, they reflected a lot here. (E; PE2)

PESQ: *[...] So how can we change that thinking?*

A 6: *By not putting labels on people.*

A 5: *Trying to change people's way of thinking as well.*

A 6: *We ... try to see each other as equals. I think that way you can change. Not seeing that one is superior to the other, the two are on the same level. (I, G2)*

We understand that DECIDIX has been configured as a resource that helped the educators in the problematization of contents because it is characterized as a codification of an existential situation, made available for decoding by the participants of the educational activities. The movement of codification and decoding of reality, which characterizes the problematization in the Freirean perspective, aims at overcoming a naive vision and impels the learner towards a critical awareness of reality^{6,7}. This problematization occurred most of the time from the prior knowledge of the adolescents so that the educators constructed together with them the critical reflections. This is in line with Paulo Freire's conception that understands the importance of valuing the reading of the students' world in the educational activities.

Freire & Macedo²² affirms that the educator must increasingly improve his reading of the world that learners make of their experienced (micro and macro) context, considering their understanding of their presence in the world, so that not only a new "worldview" is possible but above all a transformation of that world.

Also, we noticed that the debate during the game allowed young people to perceive the limiting situations that circumscribe them in situa-

tions of vulnerability and to identify other different possibilities of action they are faced with, not seen previously, which are considered feasible unprecedented, in Freire's conception⁶.

However, it was observed that, despite ratifying in their statements the importance of toproblematize, some PS and PE assumed positions that limited it, presenting difficulties to adapt the story to the context of the group, to stimulate young people to put themselves in the place of characters, besides narrowing the focus of the game's options, not stimulating the debate.

But when it came to bringing to the reality of adolescents, I think it lacked some of that link, to put them in the situation. (DC, I5)

Besides the difficulties related to the educator, we also observed that the possibility of more or less critical reflection refers not only to the conduction of the educator but is also conditioned to the inherent aspects of the topics under discussion permeated by cultural conceptions hegemonically valued in our society, whose deconstruction requires continuing action.

Thus, in some actions with adolescents, we perceived the non-advance of naive conceptions to more critical perspectives because of the "power" with which the former is embedded in the reality experienced by them. As an example, we have the recognition of daily life behaviors, such as interrupted coitus, and of "immovable" and hegemonic visions vis-à-vis the social construction of gender relationships in society (women responsible for domestic chores and family care, and men for financial support).

PESQ: Who takes care of the child?

A 11: Both, but it is the mother most of the time.

PESQ: Why is that?

A 11: Because she has to breastfeed [...] there's a specific age for breastfeeding.

PESQ: But even in this breastfeeding age, can fathers help out?

A 13: They can.

A 11: They can.

PESQ: Doing what?

A 17: Buying a baby bottle.

PESQ: Couldn't the father help out in the child's care? Giving a bath, feeding, taking to school, changing the child's clothes.

A 16: If he has the time to do so...

A 17: He works to earn some money and (paid a woman to provide care) (I, G3)

Understanding education as procedural and permanent, Freire^{6,7} advocates an intentionality in education that challenges learners to perceive themselves as beings in and within the world in

a progressively critical way. Thus, we understand that DECIDIX is not characterized as a magical resource that can change realities and consciences by itself, but it is configured as a tool for actions that stimulate the exercise of critical analysis, at the possible level, for the group.

Educator-learner relationship

Dialogue is central to Freire's thinking⁵⁻⁷ and DECIDIX. During the research, we identified some of the elements conceived by Freire that were essential to the dialogical relationship between the educator and the learner (horizontal relationships; ethics [respect]; amorousness; and shared construction of knowledge) were materialized or not in the educational actions mediated by game.

The PE and PS reported that the game facilitated the breakdown of the "barrier" between professional and adolescent because with its use the educator can counteract the posture of knowledge holder and build a horizontal relationship between actors. This horizontal relationship happened as they were attentive to the statements and looking into the eyes of the participants, valuing the knowledge brought by them and stimulating the dialogue.

[...] It's keeping on their same level, a very horizontal conversation, accepting demands and statements. Bringing a little orientation (E; PS3)

This construction was also valued in the adolescents' discourse concerning the researchers, highlighting the use of a language closer to theirs and creating a safe space in which they could talk, expose and dialogue.

A 5: [...] he earned our trust.

A 10: He passed on some information that we did not know.

A 6: He spoke as we do. So that we are free to dialogue. (GF; G2)

The analysis of data from the field diary showed that the construction of horizontal relationships between educator-learner, in actions with professionals, was influenced by different aspects, such as the environment, which was most often welcoming with a prior preparation of the space; the use of strategies to facilitate the approximation, such as the use of initial and final dynamics to provide link building; the concern about the guidelines given to adolescents so that they were not made in a prescriptive, inductive way, or that interfered very much in their viewpoint, in order not to break the established; approximation to the way of dressing of the adoles-

cents (specifically the PS); listening attentively to the adolescents and humbleness in the relationship with them.

Attitudes toward horizontality are crucial to the effectiveness of DECIDIX since, in Freire's perspective, dialogue is only possible when there is an openness to listen to the other, recognizing their knowledge without imposing thoughts^{5,6}.

The author⁵ stresses that listening to the other does not mean self-annulment; on the contrary, opening the listening mode enables subjects prepare to better situate their viewpoint, without having to be authoritarian. Also, Freire⁵ understands that legitimate listening demands of the subject several qualities, which are the democratic practice of listening as love, respect, tolerance, humbleness, and openness to the new.

Most of the actions were carried out with respect among the participants, who did not have to raise their voices to ask to speak out or to ask them to listen to the statements of their friends, as well as to respect the preferences of these adolescents in the choices of the game's alternatives.

They never had to shout, adolescents themselves asked for this silence in class, and they did not have to change their tone of voice. (DC; I1)

It was a calm group that could hear each other, respected the rules of the game [...] (DC; G5)

However, in some actions carried out by professionals, respect did not always prevail, with situations in which the adolescents overlapped their voices, shouted and verbally assaulted one another and did not respond to the professionals' requests for silence, which sometimes also shouted with adolescents to impose "respect". There were also times in which the PE and PS imposed their knowledge, overlapped the statements of adolescents and directed attitudes that would be "appropriate" to them, assuming a stance adherent to the gender relationships imposed by society.

The teenagers were talking a lot of swear words [...]. Not directly to attack the teacher, but between the students, or with the game. [...] there was a lack of respect among teenagers; they did not listen, they made much noise. (DC, I5)

Freire⁷ said that the attitude of respect in fair, serious, humble, generous and ethical relationships between educator and learner authenticates the formative character of the educational activities. However, the difficulties experienced in this context in educational actions refer to the discussion of "silence" and "the silenced" in the communication space. Freire⁶ recognizes the difference between the "silenced" space in which the authoritarian educator determines the time of

his speech and the listening to the other, and the space "with or in silence", in which the democratic educator, the one who learns to speak by listening, is interrupted by the silence "of those who, by speaking, shut up to listen to whom, silent and not silenced, speaks". In this perspective, it is understood that silence in the educational practice should not be imposed on the learner, but should be respectfully gained by the educator.

Professionals and adolescents confirmed the importance of this perspective for the educational practice in health since they affirm that the educational actions mediated by DECIDIX provided a shared construction of knowledge. The professionals emphasized that the adolescents participated actively in the debate, discussing the contents that were presented, and the professionals also opened to the position of apprentices in most situations. Young people affirmed that, in the activity with the researchers, they were able to build the options of the story together, and this became a listening and collective learning space.

Because they are very used to me coming here to chit-chat... condom is used this way... so I wanted to talk..., but then I said: how do you use the condom? So he started to explain... (E; PS1)

A 5: [...] Each gave his opinion and learned from the other. (GF, G2)

A 20: It was good because everyone helped in the response. (GF, G4)

However, in the research with the professionals, we identified that, although all affirmed during the interview that they jointly built the knowledge with the adolescents, the observations in the activity of some brought different situations, revealing difficulties in this construction.

I missed this joint construction – it was another monologue of the adolescents [...] she did not have this attitude of learning or teaching [...] I could not perceive a joint construction due to this speed and lack of debate. (DC, I 6)

According to Freire⁷, in establishing a reciprocal relationship in the educational process, educators and learners can learn together. Thus, by conducting DECIDIX in a participatory and problematizing way, the educators will have the opportunity to know the universe experienced by the adolescents so that they can (re) constructively new conceptions and reflect on their performance in this field.

The effectiveness of this pedagogical attitude can only be achieved when all subjects, learners and educators are co-responsible for the construction of the educational space in a dialogical perspective. However, it should be pointed out

that the educator must initiate the construction of this dialogue by making clear with the students their liberating intentionality through statements and above all attitudes.

Thus, the importance of training, both initial and continued in-service education is stressed, allowing professionals to have educational experiences that overcome the traditional and vertical perspectives commonly experienced and understood by Freire⁷ as “banking education”. It is argued that the opportunity to experience processes of formation that enable them to experience other forms of non-oppressive learning and teaching, but rather liberating ones, through a correct praxis, sustained by action-reflection on oneself and own actions can contribute to effective changes in the daily practices of professionals.

Promoting experience and emancipatory learning

Both adolescents and PE and PS revealed that DECIDIX promoted essential experiences and feelings of greater autonomy concerning adolescent pregnancy. The youngsters pointed out that the game helped them better understand the subject; gain maturity through sharing and dialogue; and was realistic, allowing them to be more attentive if the circumstances discussed in the intervention occurred in their lives.

A 19: it was excellent. I liked this game. I think if the person plays this game, the person matures and becomes smarter.

A 28: [...] it helped us to be more mature, so we know how to solve some problems.

A 23: We learn. We get more experienced!

A 27: It helped us to understand. (GF; G4)

The adolescents reported that the game provided moments of union and interaction, and it was emphasized that, despite being in the same room, many did not “really know each other”, since they were not heard and respected one another.

PESQ: Was there anything else different in your interaction?

A 16: The difference was that everyone respected each other's opinion.

A 17: I was wondering whether I could speak to the others after this game... (GF; G3)

Petry's literature review²³ highlights the relevance of digital games towards promoting knowledge and experience and learning of socio-affective skills. In the Freirean perspective, stronger bonds of solidarity are indispensable for the processes of emancipation.

Discussing the emancipation category and its contributions to sex education, Decker²⁴ highlights that this is closely related to the concept of Freirean humanization. Freire^{6,7} understands that humanization and humanizing oneself are processes that take place in communion, in the relationship between men and women among themselves and with the world in the constant search for be more. The dialogical relationship with others enables human beings to construct and transform the world, which brings to the fore the importance of educational experiences in which human relationship is favored in a significant way, as advocated by the National Popular Health Education Policy²⁵.

In the same perspective, for PS and PE, the experience allowed adolescents to express aspects of creative potential and to envisage the possibility of a greater assumption of the “reins” in the construction of their life stories.

The existence of experiences that demand conscious decision-making, even in simulated environments like the one proposed by DECIDIX, assists in the establishment of student's autonomy. According to Freire, “one learns to decide by deciding”, since “the decision to assume the consequences of the act of deciding is part of the learning”, and that is why “the decision is a responsible process”²⁵. He also draws the attention to the fact that autonomy does not happen suddenly, but it is a process that must be promoted by respectful and stimulating experiences of decision and responsibility.

Final considerations

The use of serious games as facilitators in health education has gained relevance among the adolescent audience in promoting a motivating environment, associated with the construction of relevant knowledge and experiences. The reflections built here stimulate continuing methodological researches aimed at the validation of digital educational games, which, as we have identified, have a positive impact on health actions with adolescents and are increasingly part of their daily lives.

The DECIDIX is part of this context and carries these characteristics and the foundation of Freirean pedagogy. The choice of this perspective as a theoretical and methodological reference both in the development and in the use of DECIDIX proved to be congruent with the perspective of valuing adolescent leadership concerning sexual and reproductive health.

We understand that the educational intentionality of DECIDIX, materialized in the conduct of the mediators of the action and objectified in the data underlying this study, transcends specific questions of this subject and can support reflections pertinent to all the “encounters” of health professionals and education with youth. These meetings marked by their diversities and conditioned by the concreteness of the living and working conditions of their participants can be potentially seen as promoting experiences of criticism, autonomy, solidarity and humanization, primordial elements for the transformation of reality.

Nevertheless, we emphasize that only using the game does not confer “miraculously” to the educational practice the dialogical and transforming character. What is being advocated is that the game is a mediating tool between professionals and adolescents for the establishment

of dialogue, whose results depend on the intentionality of each of these stakeholders to happen.

As discussed throughout this study, we observe the recommendation of public policies and guidelines congruent to that proposed by DECIDIX. However, transposing what is written on “paper” to the daily routine of health services and education presupposes the provision of new training processes for professionals. These training sessions provide educators with the opportunity to reflect critically on the extreme situations experienced and discover new possibilities of being and living with the adolescents and in the world. As advocated by Paulo Freire, these dialogical possibilities are marked by a loving nature, faith in the potential of human beings, trust, humbleness and above all active and mobilizing hope in the face of the many challenges faced daily.

Collaborations

RJS Monteiro and MPCA Oliveira contributed to the design, planning, collection, analysis and text drafting; RB Belian, LS Lima and ME Santiago contributed to the design and critical review of results; DT Gontijo guided the research process and text drafting.

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