Original article

Action 2.0: a serious game for the psychosocial formation of Social Workers in distance learning in Colombia

Ángela Johana Vargas-Hernández
Master's in Social Sciences. Social Worker
Universidad Católica Luis Amigó. Medellín, Colombia
angela.vargashe@amigo.edu.co

Viviana Racero-López
Master's in Human and Organizational Development Management. Social Worker
Universidad Católica Luis Amigó. Medellín, Colombia
viviana.racerolo@amigo.edu.co

Albeiro Aguirre-Ríos
Master's in Economics. Economist
Universidad Católica Luis Amigó. Medellín, Colombia
albeiro.aguirreri@amigo.edu.co

Luisa Fernanda Hernández-Pérez
Social Work Student
Universidad Católica Luis Amigó. Medellín, Colombia
luisa.hernandezpe@amigo.edu.co

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Correspondence: Ángela Johana Vargas-Hernández. Universidad Católica Luis Amigó. Tv. 51a # 67B 90, Laureles – Estadio. Medellín, Colombia. Email: angela.vargashe@amigo.edu.co

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Abstract

Gamification, through game design strategies applied in distance learning environments, facilitates the development of specific disciplinary competencies. This article examines the use of serious play Action 2.0 by Social Work students in distance learning to enhance psychosocial skills development. The methodology used was quantitative, using a comparative design between exposed and non-exposed groups to the serious game Action 2.0, composed of 46 students selected by sampling for convenience. The participants discussed potential situations in Social Work, which involve encountering challenges and narratives that require skills like active listening, self-recognition, empathy, and effective communication. As a result, a cognitive-behavioral pedagogical framework based on the ADDIE model (specification, analysis, design, development, implementation, and evaluation) was consolidated, demonstrating high adherence that can create an addiction to serious games. This confirms that serious play is a tool that strengthens the professional and psychosocial competencies of Social Work students, which also provides valuable feedback for the design of future educational interventions.

Keywords: Gamification; Serious play; Distance learning; Psychosocial skills.

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Action 2.0: un juego serio para la formación psicosocial de trabajadores sociales en entornos de educación a distancia en Colombia

Resumen

La gamificación, mediante estrategias del diseño de juegos aplicadas en entornos educativos a distancia, facilita el desarrollo de habilidades disciplinares específicas. Este estudio examina el uso del juego serio Action 2.0 por estudiantes de Trabajo Social bajo la modalidad de educación a distancia para potenciar el desarrollo de habilidades psicosociales. La metodología empleada fue de corte cuantitativo, mediante un diseño comparativo entre grupos expuestos y no expuestos al juego serio Action 2.0, integrados por 46 estudiantes seleccionados mediante muestreo por conveniencia. Los participantes abordaron situaciones posibles en Trabajo Social, de enfrentar desafíos y narrativas que requieren habilidades como escucha activa, autorreconocimiento, empatía y comunicación efectiva. Como resultado, se consolidó un marco pedagógico cognitivo-conductual basado en el modelo SADDIE (especificación, análisis, diseño, desarrollo, implementación y evaluación), el cual demostró que puede crear afición al uso de juegos serios. Esto confirma que el juego serio es una herramienta que fortalece las competencias profesionales y psicosociales de los estudiantes de Trabajo Social, y además proporciona valiosa retroalimentación para el diseño de futuras intervenciones educativas.

Palabras clave: Gamificación; Juego serio; Trabajo Social; Educación a distancia; Habilidades psicosociales.

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1. Introduction

Distance education, mediated by information and communication technologies (ICT), opens a space for multimedia learning (ML) and virtual teaching (VT). ML enhances students' learning by integrating visual and verbal elements in digital environments. A relevant aspect of ML is the student-centered instructional design, which promotes meaningful and practical understanding. Similarly, VT is part of multimedia environments and requires rethinking traditional didactic and pedagogical approaches using technological mediations.

In this context, gamification emerges as a pedagogical strategy that integrates techniques from game design in non-game scenarios to increase motivation and student engagement toward specific disciplinary objectives. Adopting ICT in distance education in disciplines such as Social Work is a challenge because, traditionally, essential competences have relied on direct on-site interaction.

The main challenge in distance education for Social Work students is ensuring the development of the necessary skills to professionally intervene in concrete social issues in diverse contexts, with groups, individuals, families, and communities. Educators and developers have created the responsible game Action 2.0 to combine entertainment with educational objectives, generating positive experiences and fostering self-directed learning for developing psychosocial skills like active listening., self-recognition, effective communication, and empathy.

Action 2.0 becomes a teaching tool that allows the personalization of learning and enhances student involvement and commitment. Its application not only strengthens specific professional competences in Social Work but also positively redefines the formative experience in distance education settings. Thus, gamification applied through the responsible game Action 2.0 offers added value to the distance educational process.

On the other hand, scientific literature indicates that educational games increase motivation compared to traditional methods (Garris *et al*., 2002). Empirical studies show well-designed games foster skill development through an "experience cycle" (Gee, 2003). Gamification identifies three levels in educational contexts — behavioral, affective, and cognitive — making it relevant to expand rigorous empirical studies that evaluate the effectiveness of gamification in these contexts (Dichev & Dicheva, 2017).

Furthermore, in gamification, the tools' context and design stand out to optimize learning outcomes (Jedel *et al*., 2021; Para, 2021). Thus, gamified platforms respond to students' needs and motivations with a focus on person-centered design (Bovermann & Bastiaens, 2020; De la Peña *et al*., 2021; Treiblmaier & Putz, 2020; Werneck-Barbosa, 2022). In this sense, instruction positively relates to students' playful experience (PE) and is associated with experience theory (Höyng, 2022). For example, gamification favors learning in cognitive, motivational, and behavioral

dimensions (Dos Reis *et al.*, 2023; Kılıç & Gökoğlu, 2022; Mendoza-Falcón *et al.*, 2022; Sailer & Homner, 2020; Zhumasheva *et al.*, 2022), and studies recommend adaptive gamification tailored to individual preferences through the analysis of game mechanics and adaptive algorithms (Bovermann & Bastiaens, 2020; Sezgin & Yüzer, 2020).

Game mechanics enhance the user experience in digital environments and positively impact the learning process (Zainuddin *et al.*, 2020)—the connection between innovative approaches and student satisfaction in hybrid scenarios (Kovatcheva & Dimitrov, 2024). Thus, gamification becomes a strategy for distance education by promoting self-efficacy through establishing clear goals and Feedback (Bai *et al.*, 2020; Reyes-Cabrera, 2022; Sezgin & Yüzer, 2020). In other words, gamified tools facilitate multimedia learning by integrating visual and auditory information and enhancing educational outcomes (Mayer, 2002).

Gamified activities develop practical competences but require improvements to facilitate the understanding of theoretical concepts (Domínguez *et al.*, 2013), which aligns with the dynamics of responsible games created for educational purposes, whose goal is to solve problems and acquire knowledge for specific competences (DuBose, 2024). For instance, in maritime education, responsible games significantly improve concepts' retention and association (Christodoulou-Raftis *et al.*, 2024). In this regard, it is important to highlight that to promote meaningful learning through responsible games, it is crucial to integrate parallel experiences of repetitive practices (Ratan & Ritterfeld, 2009).

As evidenced, gamification is an effective strategy in distance education, as playful technologies enrich digital environments (Ozcinar *et al.*, 2021) and contribute to the analysis that digital pedagogy links teaching-learning with the essential purpose of education (Suárez-Guerrero *et al.*, 2024). Educators must plan virtual didactic strategies implemented and controlled to ensure the development of competences and promote collaboration and the specific interests of disciplines (Rivera-Tejada *et al.*, 2023), emphasizing the importance of effectively integrating digital tools in distance and virtual education (Vargas-Hernández *et al.*, 2024).

On the other hand, in the context of the psychosocial variable in Social Work, literature highlights the relevance of integrating social, psychological, biological, and cultural factors to achieve comprehensive interventions (Villa-Gómez, 2012). Thus, approaches focused on individual strengths are proposed, and the role of emotions in relational Social Work is emphasized (O'Connor, 2022; Richardson, 2022), contributing to interventions in the community context, while highlighting the importance of assessments and case management (Arajärvi *et al.*, 2023). In this sense, some articles recommend longitudinal studies in Social Work with families and clinical settings (Abrams, 2020; Ferguson *et al.*, 2020) to facilitate evidence-based intervention processes, especially in hospitals (Judd & Sheffield, 2010).

2. Methodology

Research Design

The study employed a quantitative approach with a descriptive and comparative design to evaluate the satisfaction of Social Work students in distance education at Universidad Católica Luis Amigó with the responsible game Action 2.0, designed and created by the researchers.

Participants

The sample comprised 46 active students from the distance Social Work program, enrolled in levels 1, 2, and 3 of professional practice. The researchers used a non-probability convenience sampling method. All participants provided voluntary informed consent and indicated that they understood the purpose of the study and their right to withdraw at any time.

Information Collection Instruments

Three instruments were used for data collection process: 1) a sociodemographic data characterization survey; 2) a questionnaire adapted by the researchers from the heuristic theory of informal usability method for interface designs (Nielsen & Molich, 1990); and 3) a Likert-type scale questionnaire created by the researchers to identify key concepts related to psychosocial skills, such as active listening, self-recognition, empathy, and effective communication, after using the responsible game Action 2.0.

Procedure

The framework was used as a conceptual framework, which provides a systemic structure for implementing educational projects, in this case based on the responsible game Action 2.0, using a cognitive-behavioral approach under the SADDIE model. This approach is relevant for the responsible game Action 2.0 design, which guides the development of social skills. In this study, the implementation followed several stages. Initially, researchers highlighted the importance of strengthening psychosocial skills such as active listening, self-recognition, empathy, and effective communication derived from academic spaces called "practicum staff," where students practice socializing their professional experience. The researchers then conducted a sociodemographic analysis to identify relevant aspects for the pedagogical design (Twycross, 2004). In this regard, drawing on some of Kolb's experiential learning concepts (Rodríguez-Cepeda, 2018) and multimedia learning theory (Mayer, 2002), the responsible game Action 2.0 was designed to integrate immediate Feedback, decision-making, and real-life situations. Next, the responsible game Action 2.0 prototype was developed and tested with a focus group. Finally, the game was implemented in a synchronous session, followed by a survey to validate the

development of skills addressed in the responsible game Action 2.0: active listening, self-recognition, empathy, and effective communication.

Statistical Analysis

The researchers conducted descriptive data analysis using measures of central tendency and dispersion for quantitative variables, such as age and completed term. The analysis included evaluating a 95% confidence level, which provides precision in estimating the population mean in quantitative studies. The researchers used descriptive measures such as the arithmetic mean and standard deviation for each question related to the use and effectiveness of the educational tool Action 2.0.

The results allow for evaluating different dimensions of the students' experience with the tool, such as Navigation, Visualization, multimedia content, and psychosocial skills development. The researchers evaluated four specific variables (active listening, self-recognition, empathy, and effective communication) when comparing two groups of students, one exposed to the responsible game Action 2.0 and one not exposed, grouped into two dimensions: understanding the concept and its practical application. The researchers evaluated the results for each variable in both groups by analyzing concept understanding and application through decision-making in the situation presented by the responsible game Action 2.0. They compared the means between the two groups using the "achievement percentage," which they calculated for each group and each variable based on the maximum possible score. This approach allowed the researchers to compare the overall performance of both groups and the performance in each specific psychosocial skill.

3. Findings

The study's main results were: 1. Characterization of the participant sample; 2. Descriptive results of the variables related to using the Action 2.0 tool; and 3. Descriptive results of key psychosocial variables in Social Work: active listening, self-recognition, empathy, and effective communication.

3.1 Characterization of the Participant Sample

Table 1. Age Descriptive Statistics.

Statistic	Value
Mean	30.89
Standard Error	0.94
Median	30.5
Mode	40

Standard Deviation	6,374352293
Sample Variance	40,63236715
Kurtosis	-1,175091477
Skewness	0.082638632
Range	24
Minimum	19
Maximum	43
Sum	1421
Count	46
Confidence Level (95.0%)	1,89294897

Source: own elaboration.

Table 1 shows that the average age of the participants is 30.89 years, with a standard deviation of 8.47, indicating a moderate dispersion in the students' ages. The analysis reveals a symmetrical distribution, with a skewness coefficient of 0.0026, suggesting no significant bias in the age distribution. The students' ages show an even distribution around the mean. The data also reveal wide age variability, with a 24-year range between the youngest participant (19 years old) and the oldest (43 years old). These data reflect the heterogeneity in life stages within the group, which may influence their perception and experience with technological tools such as Action 2.0.

Table 2. Description of the term taken.

Statistic	Value
Mean	7.78
Standard Error	0.41
Median	8
Mode	8
Standard Deviation	2,780192187
Sample Variance	7,729468599
Kurtosis	0,415005255
Skewness	-1,029952505
Range	11
Minimum	1
Maximum	12
Sum	358
Count	46
Confidence Level (95.0%)	0,825615168

Source: own elaboration.

Table 2 presents the analysis of the terms the participants are currently enrolled in, showing a mean of 7.78, which indicates that most students are in an advanced stage of their studies. The variability is low, with a standard deviation of 2.73, suggesting a concentration of students in the final terms of the program.

The study sample is predominantly female, with 43 female participants and only three male participants. This unequal distribution highlights a common trend in Social Work programs, where female representation has historically been higher.

Most participants belong to Generation Z and the millennial generation, with a greater concentration in the latter. Specifically, 28 participants are millennials, while 18 belong to Generation Z. The absence of students from older generations — Generation X or baby boomers — may influence the predisposition toward using new technologies, as millennials and Gen Z tend to be more familiar with digital environments (Díaz-Sarmiento *et al*., 2017).

Most students have a technical education level (29 students), reflecting an academic profile that may be more practice-oriented but not necessarily specialized in using advanced technological tools. Regarding their technical skills, the most common level is intermediate (26 students), while fewer students report advanced or basic skills. These results suggest that most students could be a receptive audience for Action 2.0, although some students may still need moderate technical support.

Table 3. Distribution of Experience with Educational Technology.

Experience	**Quantity**
Less than one year	3
1 to 1.9 years	3
2 to 2.9 years	5
3 to 3.9 years	8
More than 4 years	27
Total	**46**

Source: Own elaboration.

Regarding experience with educational technology, most students have between 2 and 4 years of experience with online platforms or educational tools (Table 3). These results show that most students have an intermediate level of familiarity with technological tools, which may facilitate the adoption of the responsible game Action 2.0, if institutions provide the necessary support for accessibility and usability.

Table 4. Distribution of Attitude Toward Educational Technology.

Variable	Quantity
Open to Exploration	19
Adaptive	3
Enthusiastic	10
Skeptical but Open to Change	1
Strategic	5
Innovative	5
Pragmatic	3
Total	**46**

Source: Own elaboration.

Of the 46 participants, 19 showed an "open to exploration" attitude, while 13 were "adaptive," and only a small group held a "skeptical but open to change" attitude (Table 4). This positive attitude toward educational technology suggests that most students will receive Action 2.0 well.

3.2 Descriptives of the *Action 2.0* Tool Usage Variables

The researchers evaluated twenty variables to measure key aspects of Action 2.0's performance and usefulness in the educational process. The most relevant variables for the pilot were 6: Navigation, Visualization, development of psychosocial skills, instructions, satisfaction, and interest. Navigation, with a mean (M) of 4.33 and a standard deviation (SD) of 0.84, reflects straightforward Navigation with relatively low variability. The results for Visualization, with an M of 4.17 and an SD of 0.85, show that students consider the visualizations on different devices adequate, although there is slight variability in students' opinions. Regarding the development of psychosocial skills, the result highlights that students perceive a positive impact of Action 2.0 on the development of psychosocial skills with an M of 4.65 and an SD of 0.38. The instructions are straightforward, with a low standard deviation, indicating a consistent experience among students, with an M of 4.56 and an SD of 0.31. Overall, students' satisfaction was high, with an M of 4.62 and an SD of 0.40; the low level of dispersion indicates that most participants were satisfied with using the tool. The highest-rated item was interest, with an M of 4.81 and an SD of 0.22, reflecting a strong willingness of students to integrate tools like Action 2.0 into their professional training; the low standard deviation suggests near unanimous consensus on this opinion. The study identified the students' general perceptions for each dimension assessed. Averages close to 5 indicate a positive evaluation of the tool, while averages closer to 3 reflect a neutral perception, as shown in Table 5.

Table 5. Statistical Analysis and Results of Action 2.0 Tool Usage.

Variable	Question	Average	Standard deviation
Navigation	Is Navigation between sections clear and without confusion?	4.39	0.84
Visualization	Can the interactive resource be viewed on different devices and screen sizes?	4.17	0.89
Load	Is the resource load an adequate time and without difficulties?	4.57	0.95
Instructions	Are the instructions and objectives of the resource clear?	4.59	0.91
Skill development	Does the resource help develop psychosocial skills relevant to my professional practice?	4.64	0.90
Application	Is the information provided applicable to situations in my role as a social worker?	4.68	0.89
Learning replication	After completing the interactive resource, could you explain the topic to another person?	4.50	0.96
Learning objective	Is the learning objective of the resource clear?	4.52	0.95
Content	Is the content relevant to the professional training process?	4.57	0.90
Clear information	Is the information presented clearly and precisely?	4.39	1.03
Feedback	Does the resource provide adequate Feedback and comments regarding users' actions?	4.30	1.11
Multimedia content	Is the multimedia content (videos, images, interactives) relevant and enriching to the learning process?	4.64	0.90
Satisfaction	Am I satisfied with the overall learning experience using this resource?	4.62	0.92
Support	Is the presence and support of the characters relevant?	4.70	0.88
Settings	Are the interactive resource's colors, shapes, images, animations, and other graphical elements pleasant?	4.74	0.86
Immersion	Did the interactive resource make you feel immersed in the story?	4.61	0.89
Sound	Are voices, sound effects, and audio elements important for the development of the resource?	4.74	0.86
Scenario	Is the scenario presented in line with the resource's learning objective?	4.65	0.88
Psychosocial skills	Does the resource offer valuable Feedback that helps me improve my psychosocial skills?	4.52	0.98
Interest	Would I like to have this type of resource in my professional training?	4.81	0.87

Source: Own elaboration.

The radar chart presented in Figure 1 summarizes the averages of the 20 evaluated variables and provides an overview of how Action 2.0 performs in different dimensions. The variables with the highest averages are: Interest (4.81), Configuration (4.74), and Sound (4.74). These dimensions stand out as the tool's strengths and reflect those students not only find a valuable platform for their learning but are also interested in continuing to use this resource in their training.

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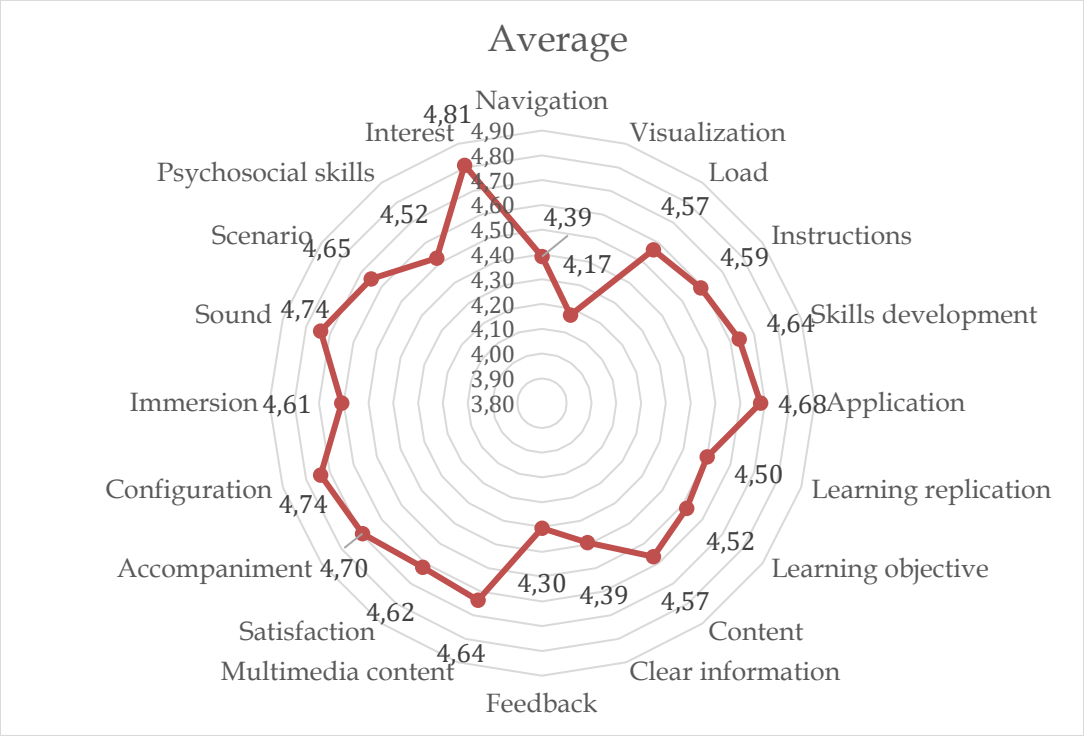
On the other hand, the results reflect areas for improvement in the Navigation variable (4.39), Feedback (4,30), and Visualization (4.17), where the scores are slightly lower, suggesting the need to optimize the Navigation between sections, expand Feedback, and improve visual compatibility with different devices.

Figure 1. Average results of the Action 2.0 interactive.



Source: Own elaboration.

3.3 Statistical Analysis and Descriptive Results of Key Psychosocial Variables in Social Work

Figure 2 shows that both groups have high scores, with the exposed group demonstrating superior performance compared to the non-exposed group, indicating a potential positive impact of the Action 2.0 tool on the development of psychosocial skills. The exposed group achieved an average of 66.47 points out of 70, representing 95% achievement. Conversely, the non-exposed group obtained an average of 64.2 points, corresponding to 92%.

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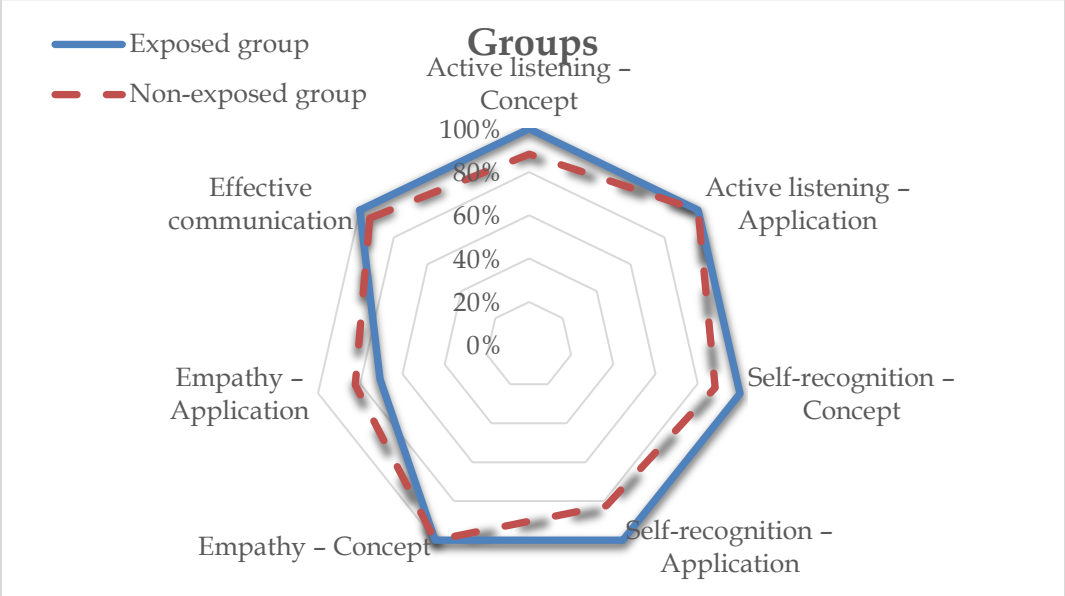
Figure 2. Comparison of psychosocial skills for Social Work.



Source: own elaboration.

In Figure 2, the study presents the results of the addressed variables. The exposed group demonstrated a better understanding of active listening (100% compared to 88%). Still, both groups were equally competent in the practical application of the skill (100%). The exposed group had a better understanding of the concept of self-recognition. It showed greater ability to apply it in practical situations (100% in both cases compared to 88% and 82% in the non-exposed group).

Regarding empathy, both groups understand the concept 100%; however, the non-exposed group has a slight advantage in the practical application (82% compared to 71%). As for the practical communication dimension, the exposed group achieved a perfect score (100%), while the non-exposed group also performed well (94%), though slightly lower. The evaluation of the Action 2.0 prototype revealed high motivation among the students, supporting Gee's (2003) theory on the importance of challenges in games. The participants linked the game to real situations in their practice, which aligns with the benefits of gamification in distance education, according to Kılıç and Gökoğlu (2022). The clarity of the instructions and overall satisfaction align with Garris *et al.* (2002), who emphasize the relevance of game structure for learning. In summary, Action 2.0 demonstrated potential to motivate students and connect learning with practical scenarios.

The Feedback on Action 2.0 revealed areas for improvement, including optimizing loading time and expanding compatibility with various devices. These recommendations coincide with Dichev and Dicheva (2017), who stress the need for critical analysis of gamification. Moreover, these results complement the study by Höyng (2022), who highlights the importance of prior experience and adequate instruction to foster game participation.

The statistical analysis reveals that the exposed group shows a better conceptual understanding and application of psychosocial skills, supporting previous findings by Zhumasheva *et al.* (2022) on the positive impact of innovative tools on learning and collaboration. In the empathy variable, it is noteworthy that the non-exposed group outperforms the exposed group. This result warrants further study to understand how to optimize the use of technology in the development of this specific skill. Overall, the results support the usefulness of Action 2.0 in developing key psychosocial competences in Social Work students. However, in line with studies like Bovermann and Bastiaens (2020), user analysis is relevant for achieving better results.

In this regard, the exposed group shows superior performance in conceptual understanding skills like active listening, self-recognition, and effective communication. This suggests that the Action 2.0 tool has effectively improved the theoretical understanding of these psychosocial skills, supporting the views of De la Peña *et al.* (2021). Overall, the exposed group outperforms the non-exposed group in most application variables, except for empathy, where the non-exposed group shows better practical application (82% compared to 71%). This result suggests that developing and applying empathy may require a different or additional approach when using technological tools — a finding that supports the studies by Sailer and Homner (2020) and Richardson (2022). While both groups scored highly in effective communication, the exposed group performed slightly

Better than the non-exposed group, suggesting that the tool may have provided a slight advantage in this key skill.

4. Conclusions

Gamification and tools such as responsible games in the distance training of social workers improve interest and the conceptualization of specific knowledge for practical application areas. Researchers have proven that responsible games help develop soft skills in different scenarios. *Action 2.0*, although requiring optimization in areas such as empathy and technological compatibility, provides evidence for superior performance in the conceptual understanding of skills such as active listening, self-recognition, and effective communication. The positive attitude of students towards technology suggests that *Action 2.0* has the potential to be successfully accepted and implemented as an educational innovation tool for the development of psychosocial skills in Social Work.

However, it is necessary to overcome the current study's limitations in data collection methods and the sample size, which will allow for more detailed information on technical skills, essential for maximizing students' satisfaction and the effective use of responsible games. Understanding the needs and characteristics of the target group is key in improving the implementation of *Action 2.0*, responsible game, to optimize the expected results in developing psychosocial skills.

The potential for implementing similar tools in distance education is considerable, especially in Social Work training programs, given the relevance of developing psychosocial competences in this field. For future research, it is crucial to apply these tools to larger groups and advance the formal development of the *Action 2.0* model with multiple phases, adapted to both virtual and on-site education. This approach would allow for integrating social science programs focused on strengthening social skills. In this context, researchers need to conduct comparative and longitudinal studies to demonstrate the impact of these technologies on teaching and learning processes in social sciences and humanities programs, to evidence their effectiveness and reach.

This perspective offers a basis for analyzing the immediate impact of technological tools on learning and their ability to promote comprehensive training in interpersonal skills, essential in practicing disciplines oriented toward social and human intervention.

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Authors' Contributions

Ángela Johana Vargas-Hernández: conceptualization, research, methodology, validation, formal analysis, writing (original draft), writing (draft review and revision/correction), supervision; Viviana Racero-López: research, methodology, formal analysis, validation, writing (original draft); Albeiro Aguirre-Ríos: data curation, formal analysis, Visualization, writing (draft review and revision/correction); Luisa Fernanda Hernández-Pérez: research.

Conflicts of Interest

The authors declare that they do not have any conflict of interest in the writing or publication of this article.

Ethical Implications

The authors do not have ethical implications to declare regarding the writing and publication of this article.

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