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An Investigation of Nursing Students' Experience With an Evidence-Based Practice Serious Game: A Transversal Study

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Education in evidence-based practice (EBP) for health care professionals presents a significant challenge in improving the quality and safety of care. Integrating EBP into nursing education is particularly complex, as traditional teaching methods often fall short in providing students with the experiential learning opportunities essential for mastering EBP. Theoretical knowledge alone is insufficient; students must actively develop practical skills to evaluate and apply evidence in clinical decision-making. Recent advancements in educational technology, particularly serious games and virtual simulations, have created new opportunities for enhancing learning experiences and skill acquisition. These tools, designed to promote knowledge development and clinical reasoning, offer substantial educational benefits across various health care training contexts.

Game-based learning is grounded in well-established educational theories, in particular experiential learning (Kolb, 1984) and self-determination theory (Deci & Ryan, 1985), emphasizing active participation, intrinsic motivation, and structured feedback in learning processes. Experiential learning suggests that students acquire knowledge more effectively through direct engagement with complex, real-world scenarios. Self-determination theory highlights that motivation in learning environments is shaped by autonomy, competence, and relatedness. Moreover, research shows that interactive and immersive experiences improve cognitive and behavioural learning (Sanchez et al., 2011; Xu et al., 2023), underscoring the importance of game-based learning in education. Recent advancements in game engine technology facilitate interactive environments that simulate professional scenarios, making serious games especially relevant for skill acquisition, engagement, and decision-making training in nursing education (Arias-Calderón et al., 2022).

Among these digital learning strategies, serious games and virtual simulations have emerged as distinct yet complementary tools for enhancing clinical reasoning and decision-making skills (Gentry et al., 2019; Liaw et al., 2017). In nursing education, serious games are digital educational interventions designed to enhance clinical reasoning by engaging students in interactive problem-solving scenarios that incorporate structured game mechanics such as feedback, challenges, and decision-making pathways (Maheu-Cadotte et al., 2023). Compared to virtual simulations, which strive to replicate clinical environments with high fidelity, serious games prioritize engagement through interactive challenges, structured rewards, and decision-based learning pathways, aligning with motivational and cognitive learning theories. While virtual simulations emphasize realism and structured clinical interactions, serious games integrate structured game mechanics that guide learning while incorporating engagement-enhancing elements such as accomplishment, curiosity, and competition to boost motivation and knowledge retention. These features make serious games dynamic and engaging learning tools that balance authenticity with game-based motivation, providing a unique blend of challenge, interactivity, and adaptability that enhances student engagement and immersion (Alvarez & Djaouti, 2008; Maheu-Cadotte et al., 2021).

Beyond knowledge acquisition, serious games provide a ludic experience in which enjoyment and immersion promote deeper cognitive and affective engagement (Plass et al., 2015). Research shows that playfulness and emotional involvement in game-based learning enhance motivation, knowledge retention, and the transfer of learning to real-world contexts (Hamari et al., 2016). However, while previous studies have examined the impact of serious games on clinical reasoning and technical skills (Maheu-Cadotte et al., 2021), limited research has explored how students experience and engage with these digital environments.

Understanding these engagement mechanisms is essential, as motivation and interaction within game-based environments are closely linked to cognitive and affective learning processes (Plass et al., 2015). In this context, a systematic review by Pacheco-Velazquez et al. (2023) highlights that while serious games improve learning outcomes, research on how individual factors influence students' engagement and learning experiences within these digital environments remains limited.

Grounded in experiential learning and self-determination theories, this study investigates how students engage with EviGame, a serious game designed to introduce nursing students to evidence-based nursing (EBN) concepts. In serious games, intrinsic motivation stems from challenges, curiosity, and mastery, making gameplay meaningful. Conversely, extrinsic motivation is driven by structured feedback, goal setting, and reward mechanisms embedded in the game design (Ryan et al., 2006). The interplay between intrinsic and extrinsic motivation shapes engagement levels and learning experiences, making these factors essential to understanding student interactions within serious game environments (Hamari et al., 2016).

This study examines students' engagement with EviGame and identifies the factors influencing their learning experiences in this digital environment. Specifically, it analyzes engagement, perceived competence, and the relationships between gaming experiences and individual characteristics such as age, gender, prior gaming experience, fatigue, and stress level. By investigating these dynamics, this research provides valuable insights into optimizing serious games for nursing education and supporting their integration into EBP training.

Objectives

The study's objectives were twofold:

1. To investigate the types of learning experiences that EviGame generates among nursing students via the Game Experience Questionnaire – Core Module (GEQ–CM) (IJsselsteijn et al., 2013).
2. To explore the relationship between the overall GEQ–CM score and factors that may influence educational experience, including age, gender, familiarity with video games and serious games, fatigue, and stress level.

Methods

Design

This study employed an exploratory cross-sectional design conducted in October 2022. Exploratory studies are particularly relevant in the early stages of research on novel educational interventions as they help to identify key variables to be examined in future experimental studies (Blaikie, 2009).

Intervention: EviGame

EviGame is a serious game designed to introduce nursing students to EBN principles through an interactive and immersive digital environment (see Figure 1). Developed using the Unity game engine

(version 2020.3.12f1), EviGame offers a structured and dynamic learning experience that simulates real-world clinical scenarios while ensuring accessibility for educational purposes.

The game positions players as newly hired nurses on their first day at a virtual hospital. Over approximately 60 minutes, students engage with various in-game characters, including patients and health care professionals, while navigating clinical situations that require them to apply EBN principles. Throughout the game, players interact with documentary resources such as scientific articles, instructional videos, and medication guidelines, guiding them towards informed patient care decision-making.

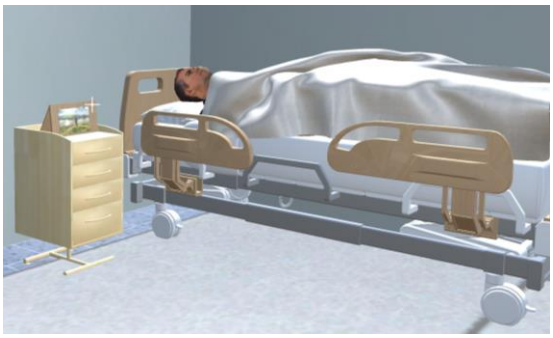
To complete their assigned tasks, players must synthesize information from four key dimensions of EBN: clinical state, patient preferences, available health care resources, and research evidence (DiCenso et al., 2005). The game structure promotes active learning through decision-making challenges in which players assess clinical situations and formulate care plans based on the integration of these dimensions. Interactive feedback loops enable players to refine their decisions based on observed outcomes, reinforcing an iterative learning process.

EviGame leverages narrative-driven learning to create a contextually rich and meaningful experience. Players progress through branching scenarios, where their choices influence the evolution of the case and the feedback they receive from virtual colleagues and patients. This structure reinforces problem-solving and clinical reasoning by prompting students to critically evaluate the relevance and applicability of various sources of evidence in patient care.

The game includes key elements that boost engagement, such as decision-making autonomy, structured feedback, and progression mechanics. These features, aligned with self-determination theory (Deci & Ryan, 1985), promote intrinsic motivation while sustaining engagement through external reinforcements.

Figure 1

Pictures of EviGame



Participants

Second-year undergraduate nursing students at the Geneva School of Health Sciences (HEdS – Genève) participating in an EBN initiation course were recruited for this study. This course provided their first exposure to EBN principles and initial experience with a serious game designed for use in nursing education. A convenience sample was chosen due to accessibility constraints and the necessity for rapid

data collection within an ongoing course module. While this approach aided recruitment, it limits the generalizability of findings to broader nursing student populations. All students enrolled in the EBN initiation course were eligible to participate, as no exclusion criteria were applied. Participation was voluntary and required informed consent before engaging with the research.

Procedure

Data collection occurred in October 2022, immediately after the serious game session. Participants who agreed to take part in the study were asked to complete an online survey via LimeSurvey (version 3.20), accessible through the university's learning platform. The survey was designed for independent completion, ensuring students could provide personal responses in an ideally quiet, distraction-free environment.

The survey comprised two main sections. The first section gathered demographic and individual factors that potentially influence the educational experience, including age, gender, prior experience with video games and serious games, and self-reported fatigue and stress levels before playing the game. These variables were evaluated to assess their potential impact on participants' engagement with the serious game.

The second section included the GEQ–CM, a validated instrument intended to measure key aspects of user experience in serious game environments (IJsselsteijn et al., 2013). This questionnaire evaluated seven dimensions of game experience: competence, sensory and imaginative immersion, flow, positive affect, negative affect, tension/annoyance, and challenge.

After completing the game, students were directed to the survey, which they could complete at their own pace. To reduce response bias, no supervision was provided during survey completion.

Instrument

The GEQ–CM was selected for this study due to its widespread adoption and validated reliability in assessing user experience in serious games and interactive learning environments. Previous research has demonstrated that the GEQ–CM reliably measures key dimensions of game experience, including immersion, flow, competence, and affective responses, which are essential to evaluating engagement in educational and simulation-based learning contexts (Pallavicini & Pepe, 2019; Pereira et al., 2019; Sajjadi et al., 2019).

The GEQ–CM comprises 32 positively oriented declarative statements that are scored using a five-point Likert scale. Participants are asked to reflect on their feelings during the game for each item on the following scale: 0 points for "not at all," 1 point for "slightly," 2 points for "moderately," 3 points for "fairly," and 4 points for "extremely." Only one answer is allowed among the five options provided.

Since the study was conducted in a French-speaking context, a validated French version of the GEQ–CM was developed using a committee-based approach (Sousa & Rojjanasrirat, 2011). In the first stage, the authors of this study performed two independent forward translations of the items from the original language to the target language. In the second stage, the authors met to review and refine the initial translated items. The third stage involved a bilingual expert committee that analyzed the original and the translated instrument's semantic, idiomatic, experiential, and conceptual equivalences. The

bilingual expert committee comprised two members with different backgrounds, educational levels, and positions in learning technologies. In the fourth stage, two translators independently performed forward translations from French to English. The back-translated items were then compared with the original items. The final French version of the GEQ–CM was prepared by discussing and integrating comments and suggestions from the previous stage (see Appendix A).

Ethical Considerations

This study adhered to institutional ethical guidelines and received approval from the faculty dean. According to local ethics committee regulations, formal ethical approval was not necessary for student questionnaire studies. Participants were informed about the study's objectives, procedures, and data confidentiality through email and course announcements at the end of the learning module. Informed consent was obtained prior to participation, ensuring that students voluntarily engaged in the study. Anonymity was rigorously maintained by avoiding the collection of any identifying data, and participants were clearly informed that they could withdraw from the study at any time without facing any consequences.

Statistical Analysis

Demographic data and responses to the GEQ–CM questionnaire were analyzed using descriptive statistics (e.g., frequency, mean, standard deviation). Assuming the non-normality of the data distribution, the relationships between the GEQ–CM overall score and age, fatigue level, and stress level were examined using Spearman correlation analysis. To investigate differences in the mean GEQ–CM score by gender, experience playing video games, and experience playing serious games, a Mann–Whitney U test was conducted due to the ordinal nature of the Likert-scale data. Statistical analyses were performed using STATA software version 15.1. A significance threshold of $p < 0.05$ was employed for all statistical tests.

Results

Of the 146 students enrolled in the course, 43 responded to the survey, and 37 completed it. The participation rate was 29.45%. Inferential statistical analyses were performed only for the 37 participants who completed the entire questionnaire.

Participant Characteristics

Table 1 displays the demographic characteristics and gaming experience of the participants. Ages of participants ranged from 19 to 48 years ($M = 26.09$). The majority of participants were women ($n = 30$).

Concerning previous gaming experience, 86.05% of participants ($n = 37$) reported having played video games, while 48.84% ($n = 21$) noted experience with serious games.

Prior to engaging with EviGame, participants reported their fatigue level as ranging from low to moderate ($M = 1.57$), while their stress level was generally low ($M = 1.02$).

Table 1

Participant Characteristics (n = *43)*

Category	***n***	**Frequency (%)**	**Mean (SD)**	**[min–max]**
Age (years)	43		26.09 (7.08)	[19–48]
Gender	43			
Women	30	69.77		
Men	13	30.23		
Previously played video games	43			
Yes	37	86.05		
No	6	13.95		
Previously played serious games	43			
Yes	21	48.14		
No	22	51.16		
Fatigue level before the activity	42		1.57 (0.86)	[0–3]*
Stress level before the activity	43		1.02 (0.91)	[0–3]*

*0 = none; 1 = low; 2 = moderate; 3 = high.

GEQ–CM Dimensions and Overall Score Results

Table 2 presents the GEQ–CM results across seven dimensions. The competence (*M* = 3.28) and positive affect (*M* = 3.18) dimensions received the highest scores. Specifically, the detailed results of the positive affect dimension (see Appendix B) indicate that students perceived this activity as a playful experience. The statement “I thought it was fun” scored 3.24.

Table 2

*GEQ–CM Dimensions and Overall Score Results (*n = *37)*

Variable	***n***	**Mean (SD)***
Competence	37	3.28 (0.19)
Positive affect	37	3.18 (0.18)
Sensory and imaginative immersion	37	2.98 (0.17)
Flow	37	2.67 (0.18)
Negative affect	37	2.53 (0.17)
Tension/annoyance	37	2.42 (0.20)
Challenge	37	2.39 (0.13)
GEQ–CM overall score	**37**	**92.92 (2.70)**

*range [1–5] per dimension, [33–165] for an overall score

Conversely, the challenge dimension received the lowest score (M = 2.39). Negative affect (M = 2.53) and tension/annoyance (M = 2.42) also had relatively low scores.

The scores for immersion and flow are at an intermediate level, indicating a positive learning experience. Specifically, the game's story ("I was interested in the game's story"; 3.43) and the ability to explore the game's universe ("I felt that I could explore things"; 3.24) are variables that achieved higher results within the immersion dimension.

Finally, students had a relatively homogeneous game experience with low standard deviations for most variables.

Association Analyses With Overall GEQ–CM Score

A Spearman correlation analysis (see Table 3) examined the relationships between the overall GEQ–CM score and age, fatigue level, and stress level.

A significant positive correlation was observed between age and overall score (r_s = 0.4881; p = 0.0022), as well as between stress level and overall score (r_s = 0.6316; p = 0.0000). However, the correlation between fatigue level and overall score was not statistically significant (r_s = 0.3004; p = 0.0709).

Table 3

Relationship Between Overall GEQ–CM Score and Age, Fatigue Level, and Stress Level Before the Activity

Variable	***n***	r_s	***p*-value**
Age	37	0.4881	0.0022**
Fatigue level before the activity	37	0.3004	0.0709
Stress level before the activity	37	0.6316	0.0000***

**$p \leq 0.01$; ***$p \leq 0.001$

Comparison of GEQ–CM Scores by Gender and Prior Gaming Experience

A Mann–Whitney U test evaluated differences in GEQ–CM scores based on gender, prior video game experience, and prior serious game experience (see Table 4).

A statistically significant difference was observed between women and men ($z = 2.961$; $p = 0.0031$), with women (96.81) scoring higher than men (83.72). However, there was no statistically significant difference regarding previous experience with video games or with serious games.

Table 4

Relationship Between Overall GEQ–CM Score and Gender and Previous Experience With Video Games or Serious Games

Category	*n*	Mean	*z*	*p*-value
Gender			2.961	0.0031**
Women	26	96.81		
Men	11	83.72		
Previously played video games			–1.223	0.2213
Yes	32	91.72		
No	5	100.60		
Previously played serious games			–1.831	0.0672
Yes	20	87.30		
No	17	99.53		

**$p \leq 0.01$

Discussion

This study aimed to examine nursing students' learning experiences with EviGame, a serious game designed to introduce them to EBN principles. The objective was to assess their engagement, their perceived competence, and the influence of various factors on their overall experience. The results indicate a positive perception of the game, with high scores in perceived competence and positive affect. However, the low perception of challenge suggests excessive guidance, which may limit cognitive engagement. Furthermore, overall engagement was positively correlated with age and stress but was not significantly influenced by fatigue. These findings raise several questions about the mechanisms of engagement in serious games and the factors that optimize their pedagogical impact. Analyzing these results in the context of existing literature helps to identify areas for improvement, particularly regarding motivation, challenge-level management, and cognitive fidelity in digital learning environments.

The findings indicate that EviGame generated a strong sense of competence and enjoyment, consistent with previous studies on serious games in health education programs (Maheu-Cadotte et al., 2021). The integration of appropriate motivational mechanisms, aligned with self-determination theory (Deci & Ryan, 1985), appears to have fostered students' intrinsic engagement, an observation corroborated by other research in nursing education (Demircan et al., 2024). However, the moderate scores in immersion and flow suggest that the game did not fully capture students' attention over an extended period. Flow theory (Csikszentmihalyi, 1990) states that an optimal balance between challenge and competence is necessary to sustain maximum engagement. As highlighted by the meta-analysis of

Damaševičius et al. (2023), this balance is a key factor in maximizing learning outcomes in gamified environments. Our findings support this assertion, as the low perceived challenge observed by students may limit the game's effect on cognitive skill development, an issue previously noted in nursing education (Maheu-Cadotte et al., 2023). One noteworthy aspect is the inter-individual variability in responses to serious games. Some students, mainly those familiar with digital environments or video games, may be more receptive to this type of learning (Masters et al., 2024). Conversely, those with less gaming experience may struggle to adapt to the game's logic, which could explain differences in immersion and motivation.

The low challenge score in EviGame reflects a common issue in educational game design: an inappropriate level of difficulty can weaken engagement (Kulakaç & Çilingir, 2024). According to flow theory (Csikszentmihalyi, 1990), a task that is too simple leads to boredom, whereas an overly difficult task can cause frustration and disengagement. The literature suggests that incorporating dynamic difficulty adjustment mechanisms could improve engagement and learning outcomes (Koivisto & Hamari, 2019). Indeed, these mechanisms enable the personalization of challenges based on players' performance, enhancing engagement (Plass et al., 2015). Maheu-Cadotte et al. (2021) emphasize that the most effective serious games offer progressive challenge adaptation, allowing students to progress at their own pace while maintaining an optimal stimulation level. This approach is also supported by Masters et al. (2024), who emphasize the importance of an adaptive, scenario-based design in which task complexity evolves dynamically in response to students' performance. Such personalization would prevent students from facing tasks that are too simple or too complex, a crucial aspect of ensuring effective learning. Integrating branching scenarios and decision-based outcomes would grant learners more autonomy, encouraging them to navigate different complexity levels and strengthening their engagement (Dawley & Dede, 2014). Providing greater decision-making autonomy, combined with challenge-based progression, could further enhance students' intrinsic motivation through the principles of autonomy and mastery outlined in self-determination theory (Deci & Ryan, 1985). Additionally, incorporating self-assessment and adaptive feedback mechanisms could allow students to adjust their progress in real time and optimize their learning experience (Thangavelu et al., 2022).

The findings also indicate that students appreciated the game's pedagogical aspects despite its simple graphics. This observation aligns with the work of Gavarkovs et al. (2023), which demonstrates that engagement is more strongly influenced by cognitive fidelity and task relevance than visual realism. It also supports Westera's (2015) conclusions that narrative structure and task relevance have a more significant impact on engagement than graphical fidelity. Maheu-Cadotte et al. (2023) point out that the perceived aesthetic quality of a serious game can be ambivalent. Some students find immersive graphics stimulating, while others feel excessive realism can divert attention from learning. Integrating adaptive challenges, where game complexity adjusts based on learners' performance, could help maintain cognitive engagement, in addition to narrative and interactive elements (Koivisto & Hamari, 2019). Masters et al. (2024) affirm this trend, emphasizing that the effectiveness of serious games primarily depends on structured scenarios and high-quality decision-making processes rather than graphical sophistication. Thangavelu et al. (2022) further support this perspective, demonstrating that pedagogical structuring and scenario-based interactions significantly affect learner engagement more than graphical realism. Therefore, development efforts should prioritize optimizing interactions and pedagogical design to ensure that each game element actively promotes learning.

Limitations

Several limitations of this study should be considered. Voluntary participation may have introduced bias, as students already interested in educational technologies might have been more inclined to participate. A study with a larger and more diverse sample would enhance the generalizability of the results. The absence of longitudinal follow-up prevents assessing the long-term effects of the serious game on learning. A pre-test/post-test approach and evaluation of clinical competencies would be pertinent for future studies. Lastly, while the findings of this study were based on validated quantitative data, incorporating interviews or focus groups could offer a more comprehensive understanding of students' perceptions and engagement mechanisms.

Integrating serious games into nursing education should be strategically designed to maximize their pedagogical impact. Adaptive and interactive scenarios that incorporate complex decision-making pathways and differentiated feedback are essential for enhancing student engagement and clinical reasoning. Encouraging peer discussions after the gaming experience can stimulate critical thinking. Furthermore, combining serious games with formative assessment tools, such as clinical reasoning tests and self-assessments, could more accurately measure skill acquisition and support knowledge consolidation. From a research perspective, examining how these tools influence clinical decision-making and student performance in real-world care situations is crucial. Another avenue is to explore the personalization of learning experiences by developing games that adapt to learners' profiles and needs. Finally, comparing serious games with other pedagogical strategies would help refine their integration into nursing curricula and optimize their use based on targeted competencies.

Conclusion

This study highlights the potential of serious games as practical learning tools in nursing education, enhancing students' perceived competence and engagement while reinforcing EBN principles. By integrating narrative-driven learning, interactive feedback, and structured decision-making, EviGame provides an immersive environment that bridges theoretical knowledge with clinical application. However, the findings suggest that refining challenge dynamics and increasing decision-making complexity could further sustain cognitive engagement and problem-solving skills. Beyond game mechanics, this study underscores the importance of adaptive learning strategies that personalize challenge levels to match individual learner needs. Future research should explore the long-term impact of serious games on clinical performance, comparing their effectiveness with other educational approaches such as case-based learning or traditional simulations. Additionally, investigating how serious games can accommodate diverse learning styles and cognitive preferences could help optimize their design for broader application in nursing curricula. As digital education continues to reshape health care education, serious games emerge as a promising pedagogical tool for fostering critical thinking, clinical reasoning, and motivation in nursing students.

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Appendix A

French Version of the Game Experience Questionnaire – Core Module

Veuillez indiquer ce que vous avez ressenti pendant le jeu pour chacun des énoncés, sur l'échelle suivante :

Pas du tout d'accord 0	Plutôt pas d'accord 1	Modérément d'accord 2	Plutôt d'accord 3	Tout à fait d'accord 4

1. Je me sentais content-e.
2. J'avais l'impression d'être habile.
3. J'étais intéressé par l'histoire du jeu.
4. Je trouvais ça amusant.
5. J'étais totalement absorbé-e par le jeu.
6. Je me sentais heureux-se.
7. Ça m'a mis de mauvaise humeur.
8. Je pensais à d'autres choses.
9. Je trouvais ça fastidieux.
10. Je me sentais compétent-e.
11. Je trouvais ça difficile.
12. C'était esthétiquement agréable.
13. J'oubliais tout ce qui m'entourait.
14. Je me sentais bien.
15. Je me sentais doué-e pour ça.
16. Je m'ennuyais.
17. J'avais l'impression de réussir.
18. Je me sentais imaginatif-ve.
19. J'avais l'impression que je pouvais explorer les choses.
20. J'appréciais le jeu.
21. J'atteignais rapidement les objectifs du jeu.
22. Je trouvais ça agaçant.
23. J'avais l'impression d'être sous pression.
24. Je me sentais irritable.

25. J’avais perdu la notion du temps.
26. Je me sentais mis-e au défi.
27. Je trouvais ça impressionnant.
28. J’étais profondément concentré-e sur le jeu.
29. Je me sentais frustré-e.
30. J’avais l’impression de vivre une riche expérience.
31. J’avais perdu le contact avec le monde extérieur.
32. J’avais l’impression que le temps pressait.
33. J’avais à fournir beaucoup d’effort.

Dimension	**Énoncés**
Compétence	2, 10, 15, 17 et 21
Immersion sensorielle et imaginative	3, 12, 18, 19, 27 et 30
Flux	5, 13, 25, 28 et 31
Tension/agacement	22, 24 et 29
Défi	11, 23, 26, 32 et 33
Affect négatif	7, 8, 9 et 16
Affect positif	1, 4, 6, 14 et 20

Appendix B

Detailed Results to GEQ–CM (n = 37)

Variable	*n*	Mean*	*SD*
Competence	**37**	**3.28**	**0.19**
I felt skillful	37	3.00	0.21
I felt competent	37	3.46	0.19
I was good at it	37	3.05	0.23
I felt successful	37	3.51	0.22
I was fast at reaching the game's targets	37	3.38	0.22
Sensory and imaginative immersion	**37**	**2.98**	**0.17**
I was interested in the game's story	37	3.43	0.21
It was aesthetically pleasing	37	2.81	0.22
I felt imaginative	37	3.05	0.20
I felt that I could explore things	37	3.24	0.20
I found it impressive	37	2.51	0.20
It felt like a rich experience	37	2.81	0.21
Flow	**37**	**2.67**	**0.18**
I was fully occupied with the game	37	2.97	0.26
I forgot everything around me	37	2.68	0.21
I lost track of time	37	2.59	0.22
I was deeply concentrated in the game	37	2.97	0.22
I lost connection with the outside world	37	2.14	0.20
Tension/annoyance	**37**	**2.42**	**0.20**
I felt annoyed	37	2.68	0.23
I felt irritable	37	2.24	0.23
I felt frustrated	37	2.35	0.23
Challenge	**37**	**2.39**	**0.13**
I thought it was hard	37	2.00	0.20
I felt pressured	37	1.86	0.17

I felt challenged	37	3.14	0.23
I felt time pressure	37	2.59	0.21
I had to put a lot of effort in to it	37	2.38	0.23
Negative affect	**37**	**2.53**	**0.17**
It gave me a bad mood	37	2.35	0.23
I thought about other things	37	2.59	0.20
I found it tiresome	37	2.62	0.22
I felt bored	37	2.57	0.22
Positive affect	**37**	**3.18**	**0.18**
I felt content	37	3.19	0.18
I thought it was fun.	37	3.24	0.23
I felt happy	37	3.03	0.21
I felt good	37	3.32	0.19
I enjoyed it	37	3.14	0.22
Overall score	**37**	**92.92**	**2.70**

*range [1–5] per dimension; [33–165] for overall score