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Review article

OUR SCHOOL IN EYES OF GAMER GENERATION: HOW VIDEO GAMES EXPOSE DEEP PROBLEMS OF OUR EDUCATION

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Milan Jovanović

Faculty of Philosophy, University of Niš, Serbia

Abstract: *From the theoretical perspective of the contemporary educational theory and didactics, there are many problems concerning our elementary and high school curriculums (within the educational system of Republic of Serbia). There is also empirical evidence that our education is outdated, ill-construed and with the problematic conception of the learning process in its core. However, those problems are rarely considered and presented from the students' point of view. In this paper, I am approaching the problems of our educational system from that perspective. I argue that the deep flaws in our education are even more evident to the newest, so-called: gamer generation. As the argument in favour of this negative claim, I offer an analysis of the learning process within the video games insisting that it is – as a sort of Dewian conception of learning – superior to the learning process typically assumed in our school. On the basis of that analysis, I propose that students acquainted and familiar with such learning process would naturally be even more reluctant and less motivated for learning in old fashioned way still present in our school system. As for the closing and positive part of the paper, my main suggestion is that focusing school curriculums around the competences tightly connected to reasoning and discovering (and also encouraging a heuristic approach as the preferable teaching method) can make our education better in both respects: objectively and in the eyes of the students we teach.*

Key words: *education, curriculums, video games, heuristic approach, PISA testing.*

1. INTRODUCTION

In what follows, I will argue that the world we live in, at this moment in time, is the worst of all possible worlds to have an educational system like ours. What I will try to establish is that not only there is (I) something deeply wrong with our educational system,

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Corresponding author: Milan Jovanović
Faculty of Philosophy, University of Niš, Ćirila i Metodija 2, 18000 Niš, Serbia
Phone: +381 18 514 312 • E-mail: milan.jovanovic@filfak.ni.ac.rs

but also that there is something (II) truly novel and interesting in the present time that even deepens (or at least make more prominent) those problems concerning the way we teach.

Claims (I) and (II) are partly empirical, so I will try to offer some empirically motivated analyses and considerations that point out some symptoms for such diagnoses. If what I try to maintain is least partly correct, it then outlines difficulties and obstacles that stand in the way of the good educational system – difficulties and obstacles that have to be met if we want to make our educational methods better. So, in a pretentious manner, it could be said that this paper can serve as *prolegomena* for (any) future educational systems. More realistically speaking, it only presents some thoughts about the potential remedy for the current problems in education. My main suggestion is that focusing school curriculums around reasoning and discovering (i.e., encouraging heuristic approach as the dominant approach to teaching) can make our education better in both respects: objectively and in the eyes of the students we teach.

2. OUTLINE OF THE ARGUMENT

Look at the following short (informal) argument:

P_1. It is *in general* wrong to reduce knowledge to ability to memorize and reproduce information, for various (more or less apparent) reasons.

P_2. In the last ten years, if not more, internet (as an ultimate informational source) is so widespread and available that enables us to find almost any information needed in a matter of seconds, which makes remembering of the fact even less important.

C. Hence, it is now even worse (than generally) to reduce knowledge to remembering information.

Now, put aside the actual plausibility of the premises and the conclusion, or the lack of further support for P_1 and P_2, since this argument was given solely for its structure. The argument that I am going to develop in this paper, although with different content, has the same structure as the one just presented.

That argument (that is the central part of this article) also has two premises. The first premise, mention above in introduction as the claim (I), is a statement about the set of weaknesses and shortcomings of our education. That topic will be discussed in section 2.

Section 3 and 4 will be in the line with the claim (II) from the introduction; they will be devoted to the features of the contemporary society that – by making some sort of a contrast to the earlier conception of knowledge – makes those problems of our education more salient and easier to spot. So, those problems are even more apparent and more prominent today and for today's students than it was the case in some earlier times.

In the last section of the paper, I talk about the conclusion of the argument and morals we should get from it. I also briefly sketch the direction for changing our education to avoid those problems that were discussed during the paper.

3. WHAT IS WRONG WITH OUR EDUCATION SYSTEM?

There are many ways to approach this question, and many well-known criticisms raised along those lines. It should be noted that I am not going to offer some novel perspective on that topic, nor do I have some new facts to add and contribute in that sense. For this paper,

it would be enough just to highlight some of these problems, especially those concerning *the general direction* in which our curriculums for (both: elementary and high) school subjects are composed and organized.[1] That would suffice to make the first premise of our argument – plausible.

What are the general characteristics of our curriculums? Of course, different school subjects have diverse curriculums, so this question cannot be answered in this abstract manner. However, as suggested above, making even a moderately informed assessment of the given question would require a very long and detailed discussion – not affordable in the short and specific paper like this one.[2] Having that in mind, I will only try to *picture* and *illustrate* some general tendentious of different school subjects and their respective curriculums – varying from humanities to mathematics and sciences, and try to be as general as possible.

The first thing you encounter, either as a student or as a teacher in Serbian education, is the *quantity over quality* policy when it comes to almost all curriculums. The amount of required knowledge is absolutely vast. For example, during one year of studying philosophy, students and teachers are expected (according to the curriculum) to go through the entire history of philosophy, from Thales to Gadamer, Russel and Kuhn, without omitting any notable philosopher. All that is supplemented with a reach introductory part aiming to define philosophy, its field, methods and disciplines.[3]

Logic as a school subject, is not only ill-construed in our high school, as often claimed in the literature concerning the teaching of that subject (see, for example: Jovanović, 2019), but also overambitious. Students (at the age of 16-17) are expected to learn about language, truth and meaning within the introduction of that course, which is followed by the part about extension and intension of the terms, definitions, distinctions and classifications. All that is just a preparation for the syllogistic logic which is the central part of the course. That part is briefly interrupted by a short introduction to propositional calculus and truth-table method. And that's not all – this logic course is also supposed to cover the introduction to scientific methodology and methodology of philosophy. All that is expected to be covered adequately in 64 classes – again, including those classes devoted to practice or grading.

Almost the same holds for mathematics and physics in our high schools. Their curriculums are designed to cover too many topics, including the very complex ones. Courses for that subjects have, as a consequence, a high pace that is very difficult to follow, for almost all students – excluding the gifted once, perhaps.

Another big problem is that our curriculums focus on *giving answers without ever explaining the questions*. Students will learn *how things are*, without being introduced to the problem, and without ever engaging in the process of *getting to know*. For that reason, our textbooks are not real introductions to the field of the subjects, but rather unprovoking and sterile encyclopedic books, full of information that just wait to be memorized.

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[1] Why focus on curriculums? Simply, because they determine (or even dictate) the content and the form of the relevant textbooks, and above that offer the guidelines for the teaching practice in school. So, the problems from the curriculums are most likely to be the source of systematic problems in the teaching process.

[2] Serbian pedagogical and didactical literature is *abundant* with analyses of the different aspects and problems in teaching those different school subjects, and my intention here (as I have pointed out) is not to discuss that issues or to make some contribution to them.

[3] Philosophy is being taught in the final year of Serbian high schools, when students are typically at the age of 18. The plan should be covered in 64 or 96 classes. The number of classes varies depending on the type of school and program taken. These are the total numbers of teaching hours (more precisely, those are 45 minutes long sessions) per year, and they include practicing, testing, or other types of the assessment of the students' development.

Yet another problem with many high school curriculums (especially for subjects from the field of humanities; i.e., philosophy, sociology and psychology) is that they are devoted to the *abstractions without clear connections to the reality*. Of course, there is nothing wrong in dealing with the abstractions – that is what sciences often do – but this appears to be a further complication of the *answers-without-questions* approach in our education.

Contrary, but equally problematic, the type of knowledge aimed in many other curriculums (like in those for mathematics) is *predominantly instrumental*, frequently without a call for a deeper understanding of the assumed principles. It is most commonly a set of manoeuvres and algorithms without an understandable interpretation from the students' part. Students learn to use complex mathematical methods without ever learning *why* they are adequate to the content on which they are being applied, or *how* we come to discover them or design them in such a way.

I have to stress this again: an adequate, plausible and academically relevant argumentation in favour of these critical claims must be elaborated, with precise references to those mentioned curriculums and empirical findings about students' scores and/or opinions. I cannot offer anything like that.[4] Nevertheless, I ask those who strongly disagree about those claims to consider the following problem. How could we explain the fact that Serbian students (and other students from countries around Serbia, as well) have comparatively low scores (compared to the students from other European countries) on PISA tests, having in mind that Serbian curriculums, textbooks, and teaching programs *set the bar* for expected knowledge much higher than it is the case in respective curriculums from other European countries (outside of the region around Serbia)? Looking at the curriculums, students from Serbia should do very well in PISA testing, much better than the students from (for example) the UK, Switzerland, or Belgium (of the same age group, of course).

But, clearly, that is not the case. Instead, it is quite the opposite. Let us take a look at the *Table 1* below:

Table 1 PISA 2012 Results

	Mathematics	Reading	Science
Serbia	42. (-45)	45. (-50)	40. (-56)
Bulgaria	46. (-55)	51. (-60)	38. (-55)
Croatia	39. (-23)	35. (-10)	27. (-10)
Montenegro	53. (-84)	53. (-74)	49. (-91)
Slovenia	21. (+7)	38. (-15)	20. (+13)
Romania	44. (-49)	50. (-58)	42. (-62)
Albania	56. (-100)	62. (-102)	55. (-104)

In the PISA testing that took place in 2012,[5] 64 countries (from Europe, Asia, South America North America and Asia) were participating. For each country in the table, there is a standing indicated (i.e., ranking position – out of 64), and also – in the brackets, next to the ordinal number – a difference between the given score and the average score of students in OECD countries.

[4] However, I do hope that it would be evident to the reader that that argumentation is not of central relevance to this paper.

[5] As usual, 15 years old students were tested in three different categories: mathematics, reading and science. Results in the table are average values for each test for the respective country. The results are from 2012 (and not more recent) since Serbia stopped participating in the testing after that cycle.

It is obvious that students from the Balkan region are heavily underperforming. The criterion for evaluation is so adjusted that *average score* for OECD countries is *500 points*, so it should be especially worrying that students from Serbia are on average scoring 10% less points in every tested field than the same age students from OECD countries. It is even worse for Bulgaria, Romania and Montenegro.[6]

A way of explaining this phenomenon is the one I've suggested above. The content of our curriculums, as I've proposed, is overwhelming, abstract, sometimes non-functional, sometimes too specific and difficult to adapt to even slightly different new problems. Those curriculums cover too much, with the pace that is too high, and thus with a little time for students to build a solid and functional knowledge in the given field – which is exactly what is being tested in the PISA testing.

One could protest that some other relevant aspects of our students' achievements suggest different conclusion about our education. For example, students from Balkan countries are often among the best in the European and world's school competitions. Moreover, at the world's best universities there is a vast number of professors originating from the Balkan region, who (partially or completely) went through their domestic educational system.

This claim, true or not,[7] does not seem to undermine the point that I wanted to make. On the contrary, it makes it even more plausible. It is exactly what should be expected from an educational system with curriculums like ours. Those students who succeed in following the overwhelming curriculums with excessive pace, those who find the meaning behind the offered abstractions, the questions that motivate relevant inquiries, the reason behind the methods and algorithms – those will have absolutely impressive knowledge within the given field of study. But those are, from everything we know from school (and PISA testing) – exceptions, and not the average students.

4. Video Games and Learning by Playing

But all this from the section above, if true, is true for quite some time. What is new is the *new social environment* in which students get to see these problems, and they appear – as I would try to show – even worse in that new light.

A lot of ink has been spilled on analysing and explaining how contemporary environment has changed and continues to change our understanding of knowledge and education. It is more and more evident that it is no longer a question wheatear you know something or not, but rather *do you know how to get to know it* – using available resources. It's not about knowing the solution "from the book", but being able to find the adequate solution using the *book of all books* – the internet; it is about being able to infer the solution or best possible approximation combining basic skills and internet resources.[8]

But I am not going to talk about the internet, either. I am here concerned with underrated and typically understated importance of *video games* and their influence on students understanding of the learning process. Until recently, video games have been *ignored as a*

[6] It is worth noting that Croatian students are doing slightly better, whereas students from Slovenia are close to the OECD average score, and stand out from other in the region.

[7] At this point, with exact data and relevant calculations missing, this is more like an academic myth than an actual statistic. Nevertheless, it can easily be true. However, it can be true for various reasons.

[8] I will talk about those basic skills in the last part of the paper.

learning tool or relevant factor in education in any sense. Now, we have plenty of books and articles on the educational potential of video games (see, for example: Squire, 2011; Annetta, 2009; Shaffer et al. 2005; de Aguilera & Mendiz, 2003; Gee, 2003; Mayo, 2009).

And indeed, video games, in its most applicable form (to education), are very close to Dewian ideal of *learning by doing* (as famously presented in Dewey, 1974). Actually, they are learning by doing *in its best form* – I claim.[9] They offer well-programmed opportunity to "do things" that would otherwise be very difficult to do, or even impossible for most of us. Also, learning that way is an interesting self-paced process, with inner appeal and motivation. Further, it is orientated to problem-solving, and it is typically project-based inquiry (rather than a questions-and-answers type of inquiry). Learning in a video game *could* (and more than seldom *do*) emphasize the importance of reasoning and development of competences instead of focusing on memory, repetition and ability to reconstruct or reproduce. Most interestingly, the process of learning to play certain game and "becoming good at it" tends to have embedded scientific methodology – as I would try to show.

Instead of theoretically talking about these claims, I will go through an example, one specific video game, and offer reasons for believing that the process of learning in video games is immensely effective and with many advantages over the learning process in regular education. The video game I will talk about is SEGA's Football Manager 2012 (*FM12* from now on).

The game in question is really a complex one, since the main task of the game – namely, *successfully managing a football team* – is composite, diverse, multileveled, and multidimensional in itself. I am stressing this as a support to the claim that in order to successfully play the game and achieve good results in it, a player needs to learn really *a lot*. Let me highlight some aspects of the knowledge required for a good "football manager".[10]

First thing first. To be a successful football manager (*FM* from now on) you need to be able to judge and evaluate players' quality and potential. In FM12 players have 36 attributes,[11] going from 1 to 20 (*Figure 1*, for the illustration), and also a few more important information: about height, weight, personality, preferred foot, skills, and preferred moves on the pitch. Attributes are not explained, nor do you (as and FM) have some information about the significance of each attribute for a specific position or a specific field instruction of the player. Also, the person playing the game doesn't have the ready-made instructions on how to tactically or strategically employ strengths or avoid the weaknesses of the players in his team squad.

So, how does a person learn in this video game? By trial and errors, together with some preconceptions about the meaning and contribution of each attribute, and comparison to the real life and real players (where possible), game players establish their own understanding of this aspect of the game. It is, again, multidimensional question, since it is not the footballer and it is not only the position he is playing, but the way you play, the specific tasks you give him, the specific opponents you play that day – that would determine the exact significance and contribution of his, say, acceleration or positioning rating.

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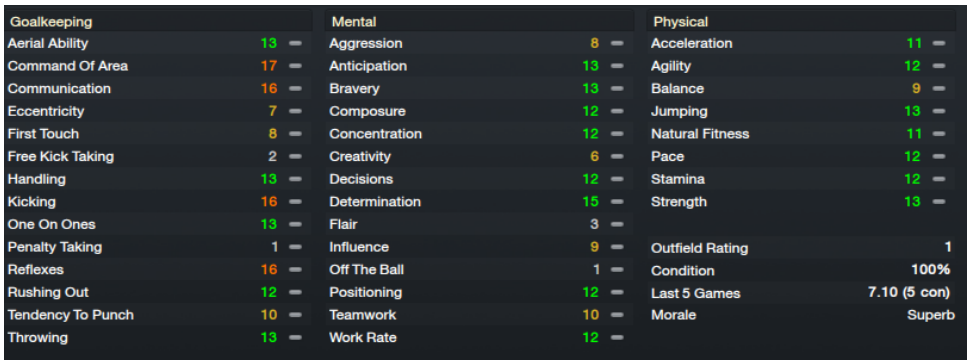
[9] Here I am opposing Leonard Waks (Waks 2001) who claims that video games are nothing like learning by doing and learning by occupation, and that they are not something John Dewey himself would have favoured. I don't have space to discuss this particular issue, but I'll refer interested readers to an article by Waddington (Waddington 2015) which provides (in my opinion) a very plausible defense from Waks criticisms.

[10] Of course, I am not claiming that this knowledge applies to real football managing. However, that question is simply not relevant as long as the knowledge required for this virtual football managing is complex enough – as I claim it is.

[11] Both: players and goalkeepers have "mental" and "physical" attributes. In addition to those, goalkeepers have a column of "goalkeeping", while outfield players have "technical" attributes.



Goalkeeping		Mental		Physical	
Aerial Ability	13	Aggression	8	Acceleration	11
Command Of Area	17	Anticipation	13	Agility	12
Communication	16	Bravery	13	Balance	9
Eccentricity	7	Composure	12	Jumping	13
First Touch	8	Concentration	12	Natural Fitness	11
Free Kick Taking	2	Creativity	6	Pace	12
Handling	13	Decisions	12	Stamina	12
Kicking	16	Determination	15	Strength	13
One On Ones	13	Flair	3		
Penalty Taking	1	Influence	9	Outfield Rating	1
Reflexes	16	Off The Ball	1	Condition	100%
Rushing Out	12	Positioning	12	Last 5 Games	7.10 (5 con)
Tendency To Punch	10	Teamwork	10	Morale	Superb
Throwing	13	Work Rate	12		

Fig. 1 Player's attributes on FM12

Let us turn to the problem of formation and tactics. Good FM should be competent in choosing and arranging formation that he is going to play with his team. It should be adequate to players he has on his disposal, but also effective in the competitions he is playing and instrumentally well suited for his seasonal goals. There is a plenty of predefined tactics and many ways of customizing them: by setting team instructions differently (see *Figure 2*).

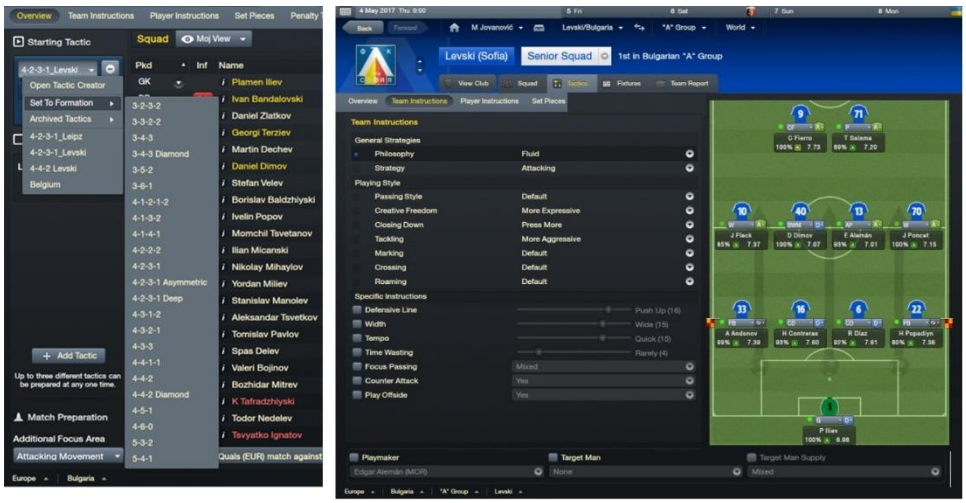


Fig. 2 Tactics, formation, instructions

In each formation, together with tactics and team instructions, FM has to set the players' roles (*Figure 3*), and even to adjust specific player instructions. All that decisions are highly contextualized and should be wisely made, depending on the players employed, tactics played, opponent faced, and many more factors.

Competences required for these settings and decisions, again, can't be found in some manual or book of instructions, but have to be learned by discovering – and, again, in a very complex and difficult environment where *everything influences everything*. What formation is good depends on many factors including the players you have on the disposal, and tactics you are employing within that formation. But what players are good, depends on what tactics you play, and what formation you employ. And there is no easy way around this circularity, since there doesn't exist any sort of *crucial experiment* showing you the right way. It is a direct application of the *Duhem – Quine thesis*, but here in video game inquiry (not in scientific one).

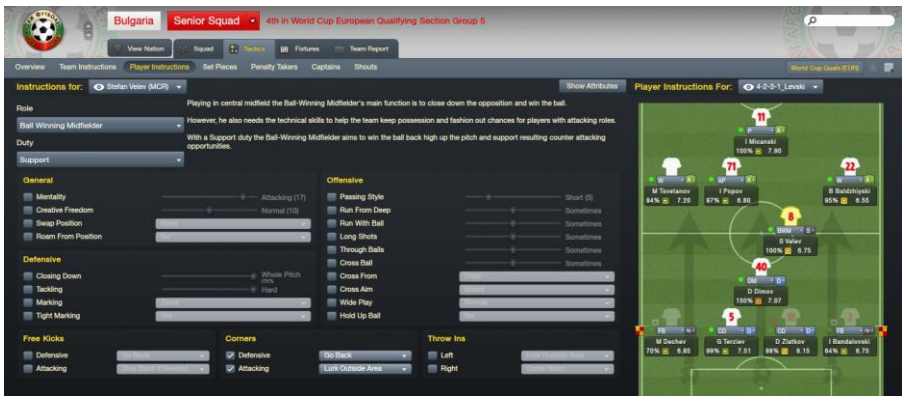


Fig. 3 Player's role and instructions

Furthermore, a football match on FM12 is not an instant result type, but rather a process, and moreover – not a monotonic one; you need to watch, make diagnoses and predictions, reflect, and react during the match. That is what the opponent is doing as well. Good FM knows which moves to make during the match so it goes according to his plan. But how you should learn that? You learn to "read" the match from the "3D match view" and statistics by playing matches, experimenting, trying, guessing right and guessing wrong. In a few words: by methodologically pursuing your inquiry, carefully framing hypothesis, and by reasoning about the feedback you get.

For example, by watching how your team is standing on the pitch when you set a certain formation and certain instructions, you can recognize when your opposition is doing something similar to that. In *Figure 4*, even an average FM should be able to see that team in light blue plays 4-4-2 formation, with defensive mentality, and plays defence zonally. That is only the first step in acquiring competences needed for active managing the team during the match. Building further on this knowledge, FM should develop his match-guiding approach. The feedback he gets from the game itself in this game-segment is, again, heavily contextualized and affected by many factors simultaneously, so it is impossible to isolate any of them and analyse its functioning.

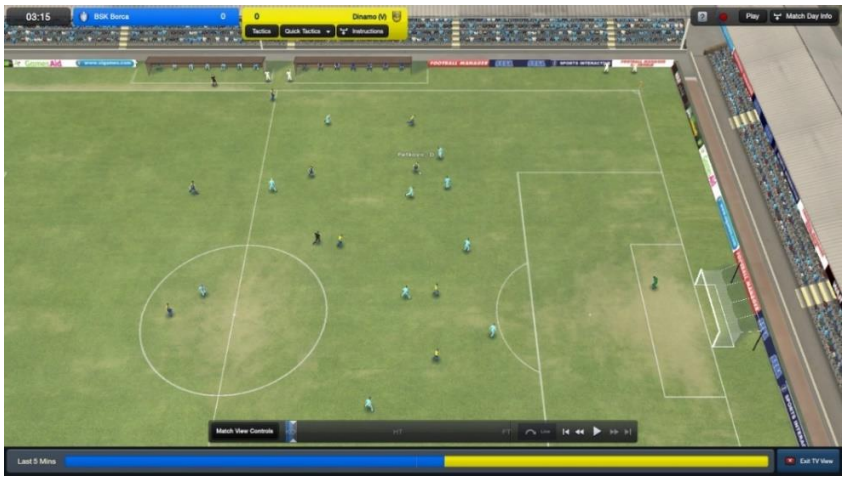


Fig. 4 3D match scene

Statistics are an important supplement to the match-play. Good FM should know how to utilize that information as well. And there is a lot of parameters. In *Figure 5* is given just a glimpse of it: the part of the statistical information from the end of the match. Statistics are available during the match and should be combined with the information gained or inferred from the 3D view, mentioned earlier.

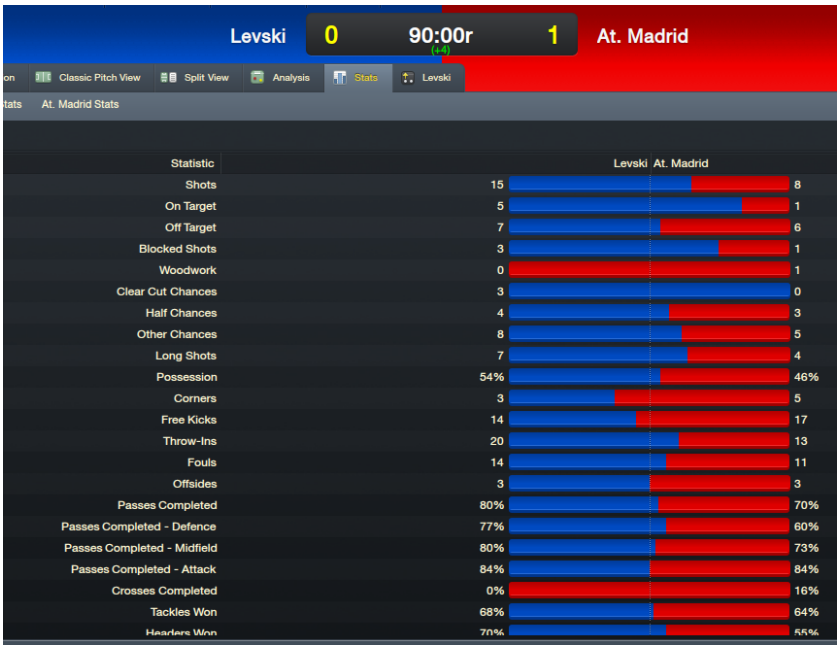


Fig. 5 Match statistics

And all this is really a small part of what one has to learn in order to become a successful player of FM12. I haven't said anything about *free-kicks settings*, and *team talks*, so even the formation and match-play stories are not complete. *Transfer decisions* require the expertise of their own. The same goes for *training settings*, *choosing training*, *and non-training stuff* for the club, *handling the media*, *interacting* with players, staff members, and owners of the club.

And, again, for all of these, you don't have a rulebook. Except for the gameplay instructions (helping you to figure out the interface and basic game environment: how to proceed with the game, how to save it, how to add another human player…), everything in the game is supposed to be learned *during playing*.

Let us now make an epistemic assessment of the knowledge (relevant to Football Manager, not to "real football" to avoid any misunderstanding) gained by practicing the game. Solely by playing the game, you develop considerable knowledge in many respects. Firstly, and least surprisingly, you get the knowledge of the gameplay, which is admittedly easy. Also, you get some old-fashioned propositional knowledge – you certainly memorize some truths about the game: good players for certain positions, good coaches, preferred tactics of some teams, and so on. But, in addition to that, you get some strategic knowledge – actually, *an awful lot of strategic knowledge*, because that is what this game is all about. And that is complex and deep knowledge to get. You develop those competencies naturally, by *reasoning* within the data that game offers you, by looking for the answers to the questions you inevitably ask yourself, by constantly thinking about the feedback and revaluating earlier hypotheses. "Why this player (with such and such attributes) plays better in the center of the midfield than on the side? Why my team (consisting of these defensive players, playing with these tactics, against such and such oppositions) concedes so many goals from the counterattacks? Why I am playing this bad against the teams with three forward players?" All these questions are little inside-projects of the game, which force you to analyse, think, make inferences to the best explanation, update those explanations or abandon them in favour of better ones, and so on.

Furthermore, by playing, you even gain a bit of methodological knowledge as well. You learn what should count as good evidence for some claims. By discovering wrong (or at least not plausible or probable enough) conclusions within previously attained knowledge, you consequently discover the wrong steps that led you to them.

And finally, when playing Football Manager *long enough*, you start asking yourself some (in a very broad sense) philosophical questions about the game. Should there be an attribute for "creativity" or "corners", because those attributes look more like a joint effort rather than a personal characteristic? Is "work rate" a valid and persisting attribute, or a momentary characteristic – vaguely connected to fitness, condition, and mental habits, but highly dependent on the current motivation of the player in question? How come physical and mental attributes are equally difficult to change, when some of those mental attributes are even a matter of decision – like teamwork (relevant for selfishness in a football game), for example? How much effect the luck has on the results? Is there any stable strategic knowledge in the game which could be true or false, or is it strategy just *a frame* in which this or that decision is good or bad?[12]

[12] There are more than several recent papers about *learning philosophy* in video games. See, for example: Schulzke, 2014; Cogburn & Silcox, 2009; Schrier, 2015.

5. STUDENTS' PERCEPTION OF THE LEARNING PROCESS

Now, let me raise a strange but instructive question. How would the curriculum for a virtual football manager look like, if it were to be a school subject in Serbian say high school education? I admit, it is a bit farfetched, but it is important to compare that (potential) way of learning with the one just described.

Here is *the sketch* of the curriculum for Football Manager 12 in Serbian school. First, we start with a historical and abstract introduction. What is the football manager game, what is its history? We then continue with definitions of an attribute, formation, training, contract, transfer, coach attribute, and so on. The curriculum then proceeds with general instructions about the strategic part of the game, which has to be confusing, since it cannot be said in advance and for all occasions what is a good or bad strategy. So, that instructions would be either too specific and narrow or too general and uncontroversial (i.e., trivial) to be of any real use. All that would be presented as a set of information, a pile of answers without questions, without clear motivation for exploring any of the given details… In the end, the curriculum would propose some standardized "a/b/c/d testing" so the teacher could evaluate students' knowledge of the subject taught.

Is it possible to become a competent FM player in this way? Is it possible to understand what this game is about by learning like this?

Leaving that aside, let us change the perspective and imagine for a moment how students of today, who (by really high percent) regularly play video games, perceive the learning process as typically employed in schools. In Table 2, I contrasted the different aspects of the learning process according to the school curriculum and learning within the video games.

Table 2 Comparison of the two ways of learning

Learning in accordance to curriculum	Learning by playing a video game
Abstract content, definitions	Concrete content, intuitive understanding
Solutions without question	Open question and projects
Memorizing and reproducing	Discovering and applicating
Mainly non-interactive	Essentially interactive
Same pace and schedule for all students	Self-paced
Outside motivation	Motivation derived from curiosity
Reading/listening to the solutions	Discovering/Analyzing data and game feedback
Reading about methodology	Learning to reason within the game
Teachers evaluate knowledge	Self-evaluation within the game

The learning process in video games is spontaneous, effective, self-passed, interactive, with a focus on searching, testing, re-evaluating, and so on (which is – I hope, now evidently – very similar to scientific methodology), and with a strong emphasis on reasoning during that process. It is, for the most types of knowledge, superior to school learning – as we typically have it planned in our curriculums and teaching instructions.

Having in mind all that is said about learning by playing video games, it is reasonable to expect that not only video games shape students' default opinion about knowledge and learning, but that learning experience also affects their perception of the knowledge offered in school.

If this is so, if that claim is true, students from the *gamer generation* are very likely to be unsatisfied with the learning process offered as offered in school. It could, as it probably does, look to them as if the knowledge from school isn't the *knowledge proper*. Maybe the students even differentiate between knowing school-wise and the real knowledge.[13]

6. Conclusions and Reflections

In this paper, we first talked about our school curriculums. There, I proposed that they are problematic in many ways and I offered some support for that claim. Then, we proceed by examining the learning process in video games, since a great majority of students do play video games nowadays and have experienced that way of learning. I, then, compared learning by playing video games (regardless of the content and subject of that knowledge) and learning in school, and try to establish that in many important respects, learning by playing has a significant advantage.

What I wanted the reader to infer from this is that exactly that experience – of learning in a contemporary environment that includes the internet and video games – enables students to see even more vividly the problems of our education. Those problems are there for quite some time, but it is this new experience which students have that exposes them completely.

That, in effect, posits a challenge for today's education – it sets a new standard for interesting, relevant, and applicable knowledge. And those standards are set high. It is why I started this paper by claiming that this is the worst of all possible worlds to have an education like ours. More precisely, this time is worse than any earlier time to have curriculums as we have in Serbian schools.

The real conclusion of this paper is that we (educators) have to deal with those new standards (for interesting, relevant, and applicable knowledge). And we are currently massively failing in doing so, primarily because we (simply) take for granted the significance of our disciplines and the adequacy of our teaching methodology. That is surely true even concerning how we teach Philosophy and Logic.

The first remedy is to focus our curriculums around reasoning and discovering, with or without actually introducing video games in them. The reasoning is certainly in the core of those basic skills, mentioned earlier, which are not made obsolete by the changes in the contemporary environment. A learning process based around the heuristic approach (that revolves around solving problems and making discoveries) harnesses and incorporates many of the advantages that we recognize in learning by playing video games. Calibrating our teaching methods to the *gamer generation*, we shall, thus, employ a heuristic approach as the main method of our education, not as some occasional supplement or decoration (as is the case nowadays).

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[13] Also, it can be one of the reasons (different from the one Paul Graham had offered; see: Graham, 2003) why best students still aren't popular and aren't typically regarded as the smartest, but instead as those who are eager to obey even to meaningless tasks.

REFERENCES

Annetta, L. (2008). Video Games in Education: Why They Should Be Used and How They Are Being Used. *Theory Into Practice*, *47*(3), 229-239. https://doi.org/10.1080/00405840802153940

Cogburn, J., and Silcox, M. (2009). *Philosophy through video games*. London: Routledge.

De Aguilera, M., and Mendiz, A. (2003). Video games and education. *Computers in Entertainment*, *1*(1), 1-14. https://doi.org/10.1145/950566.950583

Dewey, J. (1974). *The child and the curriculum/the school and society*. Chicago: University of Chicago Press.

Gee, J. (2003). What video games have to teach us about learning and literacy. *Computers in Entertainment*, *1*(1), 1-4. https://doi.org/10.1145/950566.950595

Graham, P. (2003). "Why Nerds are Unpopular", *Paul Graham Blog*, Retrieved November 26, 2020, from the World Wide Web: available at: http://www.paulgraham.com/nerds.html

Jovanović, M. (2019). O nekoherentnoj teoriji termina u domaćim udžbenicima iz logike. U: Đigić, G. and Milošević Radulović, L. (eds) *NISUN 8, Savremeno društvo i nauka*, (pp. 21-32). Niš: Filozofski fakultet, Univerzitet u Nišu.

Schrier, K. (2015). EPIC: a framework for using video games in ethics education. *Journal of Moral Education*, *44*(4), 393-424. https://doi.org/10.1080/03057240.2015.1095168

Schulzke, M. (2013). Simulating Philosophy: Interpreting Video Games as Executable Thought Experiments. *Philosophy & Technology*, *27*(2), 251-265. https://doi.org/10.1007/s13347-013-0102-2

Shaffer, D., Squire, K., Halverson, R., and Gee, J. (2005). Video Games and the Future of Learning. *Phi Delta Kappan*, *87*(2), 105-111. https://doi.org/10.1177/003172170508700205

Squire, K., Gee, J., and Jenkins, H. (2011). *Video games and learning*. New York: Teachers College Press.

Waddington, D. (2015). Dewey and Video Games: From Education through Occupations to Education through Simulations. *Educational Theory*, *65*(1), 1-20. https://doi.org/10.1111/edth.12092

Waks, L. J. (2001). Computer Mediated Experience and Education. *Educational Theory 51*(4), 415-432. https://doi.org/10.1111/j.1741-5446.2001.00415.x

NAŠE ŠKOLSTVO U OČIMA GENERACIJE GEJMERA: KAKO VIDEO IGRE RAZOTKRIVAJU DUBOKE PROBLEME NAŠEG OBRAZOVANJA

Gledano iz teorijske perspektive savremene teorije obrazovanja i didaktike, postoje brojni problemi sa našim osnovnoškolskim i srednjoškolskim kurikulumima (u okviru obrazovnog sistema Republike Srbije). Postoje takođe i empirijski podaci koji ukazuju da je naš pristup u obrazovanju prevaziđen, loše osmišljen i sa problematičnom podrazumevanom koncepcijom procesa učenja u svom jezgru. Ovi problemi se, ipak, vrlo retko razmatraju sa tačke gledišta učenika. U ovom radu pristupam pomenutim problemima obrazovanja upravo iz te perspektive. Tvrdiću da su duboki problemi našeg obrazovanja još očigledniji najnovijoj generaciji učenika, tzv. „generaciji gejmera". Kao argument u prilog ovoj tezi nudim analizu procesa učenja u video igrama insistirajući da je on – kao vrsta djuievske koncepcija učenja – superioran u odnosu na proces učenja podrazumevan u našem školstvu. Na temelju te analize, ponudiću tezu da će učenici koji su upoznati sa takvim oblikom učenja i saznavanja prirodno biti manje zainteresovani i motivisani za učenje na starovremski način i dalje prisutan u našem školskom sistemu. U okviru zaključnog i pozitivnijeg dela ovog rada, sugerišem da usmeravanje školskih kurikuluma na kompetencije koje su tesno povezane sa rezonovanjem i otkrivanjem (uz promovisanje heurističkog pristupa kao preferentne metode u nastavi) može učiniti naše obrazovanje boljim u oba pominjana smisla: objektivno i u očima učenika koje školujemo.

Ključne reči: *obrazovanje, kurikulum, video igre, heuristički pristup u nastavi, PISA testiranje*