DIGITAL GAME BASED LEARNING IN ACCOUNTING AND BUSINESS EDUCATION: A LITERATURE REVIEW

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1. Aims, Motivation and Contribution

2. Method

3. The conceptual framework of DGBL literature

4. Accounting Education

5. Business Education

6. Conclusions and Discussion
Aims, Motivation and Contribution

- This paper reviews the literature on DGBL, with a focus on accounting and business higher education, to describe the theoretical and applied knowledge developed concerning the use of DGBL and its effectiveness as learning tools, as well as to highlight avenues for future research.

- The review includes business literature to provide a wider perspective that supports the integrative competency-based education model required for the long-run careers of accountants (Pathways Commission, AAA; 2012, Lawson et al, 2014).

- The motivation of this study lies in the changes to the education model (learner-centered, Net generation) together with a call for sound research from institutions and researchers (MIT, NMC).

- The contribution lies in the identification of unsolved questions regarding the implementation, use, and assessment of DGBL in accounting education and the challenges for the future.

- We provide accounting scholarship with an overview of what needs to be studied in more depth, from both theoretical and experimental points of view, so that DGBL can be fostered.
Method

- **International databases**: a) The ISI Web of Knowledge (ISI), b) Scopus, c) ABI/Inform Proquest (ABI), d) Springerlink (Springer), and e) Business Source Complete


- **Two categories**: theoretical (16) and experimental (106). All theoretical papers are included in our review (though they were not focused on business or accounting education).

- We then **discarded articles** in the health sciences, engineering, computer sciences, and decision support system fields, so that only empirical and experimental papers on accounting, management, and business remained.

- At this stage, 63 papers remained for review. We then **discarded empirical papers published before 2000** to make our review manageable, leaving 42 papers. We also searched for the articles cited in the papers selected.
THEORIES, ATTRIBUTES AND LEARNING OUTCOMES

LEARNING THEORIES

• The **behaviourist** theory (Pavlov, 1927); (Skinner, 1993) assumes that learning is based upon experience.

• The **cognitive** theory deals with how learning takes place inside the students’ minds and how information is processed (Shuell, 1986).

• The **constructivist** theory (Piaget, 1954) focuses on how knowledge is built by considering not only the learner’s perspective but also social interactions.

MOTIVATION THEORIES

• **Extrinsic and Intrinsic Motivation** (Malone, 1981, Lepper, 1988, Kapp, 2012)

• **ARCS Model** and **Theory of Motivation, Volition and Performance** (Keller, 1987, 2008)

THEORETICAL MODELS OF EXPERIENTIAL LEARNING (Kolb, 1984)

• **Kolb Theory of Experiential Learning:** Concrete experience, Reflective Observation, Abstract Conceptualisation and Active Experimentation
THEORIES, ATTRIBUTES AND LEARNING OUTCOMES

ATTRIBUTES

- **Attributes** (Garris et al, 2002, Bedwell et al, 2009, Wilson et al. 2012): Aspects of a game based on established learning theories that support the activity. Ex: Challenge, control, fantasy, interaction, feedback, rules and goals, achievements.....

LEARNING OUTCOMES (Bloom et al, 1956, Hoover et al, 1975, Faria et al, 2001)

- **Cognitive**: imply understanding and retention at the conceptual, procedural and strategic levels (terminology, concepts and principles of business or specific disciplines)
- **Behavioural**: practice and development of soft skills (team work, adapt new tasks, resolve conflicts, working under pressure or with deadlines)
- **Affective**: imply improving attitudes by enhancing the motivation and engagement and, therefore, increasing satisfaction with the learning experience.
The conceptual framework

DGBL Conceptual Framework

Figure 1: Conceptual framework  Mayer et al. 2013
The review summarizes empirical studies that address DGBL experiences concerning the learning enhancement of accounting students and/or the development of further learning on accounting topics.

The preferred learning tool have been simulation games,

**Simulations**

**Virtual worlds**
- Buckless et al. (2014)

**On line games,**
- McEacham (2005), Moncada and Moncada (2014), Buckley, (2014)

**Videogames**
- Krom (2012)

Accounting educators have invested substantial effort to provide accounting students with DGBL experiences that may enhance their learning. However, important challenges remain.
The review also incorporates business literature that provides this research with a wider perspective.

Based on prior learning outcomes classification our review has divided empirical business papers into two broad categories: Students and Faculty.

**Students centered studies**

*Cognitive learning Outcomes:*
- Arias et al. (2010), Huang et al. (2011), Yalabik et al. (2012), Vos et al. (2010), Avramenko et al. (2012)

*Behavioural Learning Outcomes:*
- Huebscher et al. (2010), Guillén-Nieto et al. (2012), De Freitas et al. (2013), Fitó et al. (2014)

*Affective Learning Outcomes*
- Schumann et al. (2006), Coffey et al. (2006), Tao et al., 2009

*Multidimensional Research*
- Huang et al. (2013), Ranchhod et al. (2014)
Faculty centered studies

• The literature has also assessed the role of the faculty as an additional key factor that must be considered when explaining how, when, and why DGLB is used in business education.

• The factors explaining the use of DGBL by business instructors has been discussed in several papers (Chen and Liu, 2009; Coffey and Anderson, 2006; Neck and Greene, 2011; Tanner et al., 2012; Tao et al., 2012; Vos and Brennan, 2010)

Tao et al., (2012) compared the students’ and faculty’s perceptions of DGBL. The study provides three findings.

• First, the major contrast between teachers and students in the motivation to use DGBL is that students felt it was interesting, while teachers felt that it might improve the students’ learning performance.
• Second, there was a disconnection between teachers and students in their personal computer game playing habits.
• Third, the time spent in a business game (for both faculty and students) was significantly lower than expected.
Conclusions and Discussion

THEORETICAL LITERATURE

There is a lack of DGBL research on accounting and business, together with a lack of consideration of proper theories to support models and empirical testing.

- Recent papers address DGBL effectiveness from a theoretical/conceptual and rigorous point of view, attempting to provide this body of literature with sound models and frameworks that would support hypothesis development.

- However, these attempts are scarce, and many have not been tested empirically.

- Additionally, they are not focused on business and accounting but take a general educational perspective.
EXPERIMENTAL LITERATURE

Our review confirms that, as expected, DGBL generate beneficial learning effects on students. However, there are still unsolved questions and avenues for future research.

1. Conclusions of the empirical studies lack comparability, as they have been generated using very different DGBL.

• Then, future empirical research should include a theoretical framework that would distinguish among the effects of the different attributes of a digital game in the attainment of the learning outcomes.

• This would enhance our understanding of what makes a digital game effective in terms of accomplishing certain learning objectives.
2. More **heterogeneous samples** are needed, both in terms of seniority and other demographic variables.

- As most of the empirical research has focused on undergraduate business students, it is still unknown if the beneficial learning effects attributed to DGBL are also relevant for **elder professionals** already involved in the corporate world.

- Similarly, the research on how students’ **demographic variables** (i.e. cultural background, gender, learning style) affect the attainment of the predicated learning effectiveness is scarce and fragmented.

- We believe that, to take full advantage of the effectiveness of DGBL, it is very important for educators to understand how **different categories of students** are likely to respond to DGBL.
3. Most of the findings of the empirical research were based on cross-sectional data, therefore conclusions need to be interpreted with caution.

- More longitudinal studies, would permit us to better chart tendencies regarding the effectiveness of DGBL.

- Research has demonstrated that DGBL enhance cognitive and behavioural skills, but it is important to know if this learning improvement is sustained and confirmed in the medium or long term, which would indicate whether DGBL has an impact on professional development and employability of trainees.

- The relationship between the use of DGBL and trainee employability has begun to attract researchers’ attention, but any conclusion in this field should be based on more studies that can assess the long-term effect of DGBL.
4. This research seems to confirm that most faculty who use DGBL share students’ perception of their usefulness but not without concerns about effectiveness.

- **Limiting factors** could be: cost, the instructor’s learning curve, concerns about the instructor’s ability and skills, administrative workload, and difficulty of finding unbiased advice about games suitable for delivering the desired learning outcomes.

- Another unsolved critical issue is how instructors blend DGBL with other more traditional methodologies. The literature describes successful integrations into existing courses, but an integrative framework for including a DGBL into the structure of a course is lacking.

- Moreover, this rationale assumes than the right approach is blending DGBL with other more traditional methodologies and that using the game is only a small part of a business course. However, such an approach ignores the possibility of deploying the digital game as the *centrepiece* of the course, around which lectures, case discussions, essays, and other assignments could be fitted.
5. One current trend in the DGBL literature is the introduction of new technologies such as videogames, virtual worlds, and MMPOG.

- This trend poses a challenge for researchers and educators looking for new learning tools that provide students with additional competencies or seeking to develop current ones.

- The research on videogames may be lacking because this latter group of DBGL tools is newer than simulations. Given the growth in the use of videogames and virtual worlds, understanding which attributes make them more or less effective than other digital games is an important question for future research.

- The introduction of shorter videogame-based experiences may add new possibilities for business and accounting education.

- It may be needed to reconsider comparative research on learning methodologies, in decline in recent years but very popular when simulation games were added to the case methodology.
CONTRIBUTION

- Our literature review contributes to current accounting research by providing many opportunities for accounting education researchers interested in DGBL.

- There is a growing demand for theoretical and empirical accounting and business DGBL research that provides DGBL effectiveness assessments along with answers to the questions detected here, thus furnishing accounting education with sound theoretical and empirical investigations that enhance DGBL.

- Answering this call will meet the needs of current and future accountants looking for a comprehensive competence-based educational model that prepares them for their long-run careers.

- It is our responsibility as educators and researchers to provide accounting with the most effective learning processes and tools for sustainable life-long learning and employability.
Game On! Students’ Perceptions of Gamified Learning

By
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Eada Business School Barcelona
29th May 2015
Gamification

“using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning and solve problems” (Kapp, 2012)
Elements

Objective, Specific Rules

Rapid Feedback Cycles

Gamification

Reward Systems

Competition
Research Questions

• In what contexts does gamification have most impact on engagement?

• Do gamified learning activities work better in large or small classes?

• Does the level of specialism of the relevant degree make any difference to the effectiveness of gamification in education?

• What challenges or difficulties do gamified learning environments present for students?
Contributions

• Examine students perceptions of the gamified learning intervention as a pedagogical technique

• Provide other educators with guidance on how gamification can be integrated into curricula

• Use data collected to identify outstanding issues and questions in context of using gamification as a pedagogical methodology
Prediction markets are “designed and run for the primary purpose of mining and aggregating information scattered among traders and subsequently using this information in the form of market values in order to make predictions about specific future events”
Module Learning Outcome:
Consider and assess the impact of the annual tax budget

National Budget Forecasting Project:
Using a Prediction Market, students are expected to forecast the measures that might be introduced as part of budget 2014. For example,

The national budget will alter capital gains tax as follows:

- No change to the current operation of capital gains tax
- Rate changes to between 25% and 30%
- Rate change to over 31%
- Capital gains taxed at tiered rates of between 25% and 40%

€5,000 virtual cash
Link to Gamification

- Rewards: Marks and monetary prizes, leader board

- Rapid Feedback Cycles: Prices of contracts and ranking & amending strategy

- Objective Specific Rules: Buy and sell contracts

- Competition: Ranking, leader board
Student Groups

Small Postgraduate Tax Class (n=19)
• One year
• Exemptions from professional body important
• Fees of €7,250

Large Undergraduate Business Class (n=142)
• 3rd year of 4 year degree
• About to go on placement
• Registration cost €2,500
Research Method

- Focus group topic guide
- 2 Semi-structured, open ended format, focus groups
- Independent moderator
- Recruitment via email
- Vouchers & lunch/breakfast offered
- 13 undergraduates and 9 postgraduates
- 90 minutes in duration
Themes

- Learning outcomes
- Motivation
- Stakes
- Group dynamics and Gender
- Challenges
Learning Outcomes

- Key aims of the activity?
- Information consumption habits
- Real-world problems!
- Herd mentality and group dynamics

“It might make you understand the reasoning why certain things are done in the budget. Before this, I used to look at it and go ‘why did they bring that in? it doesn’t make any sense.’ But when you have to do the research behind it, you’re going ‘OK, that’s obviously going for a certain element that they’re changing for this reason’” (UG)

“Well I personally think it had no use being in the Masters of Taxation, because working in practice, we’re never going to be on stocks, making trades or buying stocks” (PG)
Motivation

- Ranking system 😊
- Beating the system 😊
- Novelty 😊
- Not time consuming but real time nature
- Financial prizes 😊

“I was monitoring my position the whole way along and that was motivating me” (UG)

“When a new question came out, everyone was rushing to their phones and stuff and you were kind of obsessed by it and you wanted to do really well” (UG)

“There was definitely an element of fun to it” (UG)

“There’s too much time gone into it for the 10%” (PG)
Perceived Stakes

- Degree as a transaction
- Intensity of course work
- Proximity to employment

“Well you’re after paying that much money, you’d want to get your exemptions, because if not its really you’ve wasted €7,000 on this course” (PG)

“So say you lost a load of money in shares that you bought, so that means you could have lost an entire 5%, so I think that was an awful lot to lose in an exemptions module” (PG)
Group Dynamics/Gender

- Better in larger, more anonymous groups
- Gender differences

“Well men are more competitive…they definitely prefer gambling, yeah” (PG)
Challenges

• Did not suit traditionally bookish students
• Ebbing of motivation

“I hang out with two girls and they were annoyed all the way through it…they are perfectionists and they could not get a handle on this because it came down to having fun, you know, participating. They just couldn’t do it, they hated it” (UG)

“It give people who might not be good at like essays, you know, the typical learning, it give them a chance to actually engage” (PG)

“If you knew you weren’t doing well earlier on, you kind of lost the motivation to stay going because you knew you weren’t going to get the right high marks, because you weren’t in a position to” (PG)
Conclusions

- The effect of gamification is contextual
- Important factors:
  - Class size
  - The stakes involved
  - General versus specialist degree
  - What other teaching and learning approaches are being deployed to suit different types of learners
  - Nature and visibility if the rewards
  - The key learning outcome
- Issues and questions that merit further study
Published


Under Review

Buckley, P., Doyle, E. and Doyle, S. Game On! Students’ Perceptions of Gamified Learning, *Computers in Human Behavior* Special Issue on Gamification
Questions?
Impact of business games on competences development

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• Agenda

• Introduction
• Theoretical background and research questions
• Methodology
• Results
• Discussion
• Conclusions
• Introduction

• Changes affecting EHEA: transition from a teaching-based model to a learning-based model

• Changes affecting EHEA: transition from students passive receivers of contents to students active constructors of knowledge

• Changes affecting EHEA: transition from a knowledge-based model to a competences based model

TRANSITION TOWARDS EDUCATION FOR EMPLOYABILITY

• Changes in the curricula design

• Change in the role of instructors and students

• Change in the learning methodologies and tools
• Background and research questions

• The competence-based learning involves bringing the academic world closer to the professional one.
  
  – Tuning Educational Structures in Europe González&Wagenaar 2003,2005)
  – White Book on Undergraduate Degree in Business (ANECA 2005)

• Effectiveness of Business Games: Benefits as an online tool
  
  – Autonomy and active builders of knowledge
  – Enjoyment and motivation
  – Immediate feedback
  – Learning from the experience and simulating on the job situation
  – Competitive environment
  – Not time or space restrictions
  – Knowledge and Skills: teamwork, leadership, decision making, problem-solving, information management
• Background and research questions

• The competence-based learning involves bringing the academic world closer to the professional one.

• Effectiveness of Business Games: Benefits as an online tool

There is a lack of systematic analysis of 1) the skills and competences fostered by Business Games, according to the competence profile used in the EHEA definition, and 2) The impact of the role of the instructors (online vs face-to-face) in the competence acquisition, 3) The role of Business Games from the students perspective
• Background and research questions

• RQ1: WHICH ARE THE MOST RELEVANT GENERIC AND SPECIFIC COMPETENCES FOSTERED BY BUSINESS GAMES?

• RQ2: ARE THERE DIFFERENCES IN THE GENERIC AND SPECIFIC COMPETENCES ACQUIRED BY STUDENTS COMPARING ONLINE AND FACE-TO-FACE EXPERIENCES WITH A BUSINESS GAME?

• RQ3: WHAT EFFECT DO THE GENERIC COMPETENCES DEVELOPED BY THE BG HAVE ON THE VALUE STUDENTS PLACE ON TAKING PART AT AN INDIVIDUAL LEVEL?

• RQ4: WHAT EFFECT DO THE GENERIC COMPETENCES DEVELOPED BY THE BG HAVE ON STUDENTS’ SATISFACTION AS A TEAM MEMBER?

• RQ5: WHAT EFFECT DO THE GENERIC COMPETENCES DEVELOPED BY THE BG HAVE ON STUDENTS’ LEARNING EXPECTATIONS?
• Methodology
• Methodology

• **Questionnaire** to 146 students (69 instructor face-to-face, 77 the same instructor on-line)
• Skills obtained from reference documents (Tuning/ANECA)
• Scales and contents adapted to previous research
• Focus group with previous students
• Revised by two experts
• Tested on 16 students
• Teams of 4/5 students dividing the game into 9 weekly rounds
• Skills obtained from reference documents (Tuning, ANECA)
• Two different parts:
  – 23 questions on generic skills (var 1.1 to 1.23)
  – 14 questions on specific managerial skills (var 2.1 to 2.14)
  – 3 questions to assess the learning results
• Methodology

Table 1
Generic competences.

| V.1.1 | Processing and analysing a set of global information concerning an undertaking |
| V.1.2 | Processing and analysing information relating to partial parts of a company |
| V.1.3 | Decision making |
| V.1.4 | Drawing conclusions from information obtained or provided |
| V.1.5 | Relating information or data |
| V.1.6 | Applying theoretical concepts of decision making |
| V.1.7 | Managing time |
| V.1.8 | Solving problems with the timelines |
| V.1.9 | Using new technologies |
| V.1.10 | Using communication platforms |
| V.1.11 | Solving technical problems related to software |
| V.1.12 | Resolving conflicts between groups |
| V.1.13 | Resolving conflicts within the group |
| V.1.14 | Reaching agreements |
| V.1.15 | Creativity |
| V.1.16 | Entrepreneurship |
| V.1.17 | Innovative capacity |
| V.1.18 | Working with uncertainty |
| V.1.19 | Influencing other individuals |
| V.1.20 | Accepting the influence of other individuals |
| V.1.21 | Delegating |
| V.1.22 | Trusting |
| V.1.23 | Contributing to a good working environment |

Table 2
Specific managerial competences.

| V.2.1 | Helping to meet the goals of a company |
| V.2.2 | Managing a company |
| V.2.3 | Improving the competitive position of a company |
| V.2.4 | Developing strategies |
| V.2.5 | Providing advice |
| V.2.6 | Managing risk |
| V.2.7 | Adopting different business roles |
| V.2.8 | Implementing planning projects |
| V.2.9 | Understanding management concepts |
| V.2.10 | Understanding management theories |
| V.2.11 | Processing and analysing financial information |
| V.2.12 | Understanding the role and function of various economic agents |
| V.2.13 | Identifying and working with sources of economic information |
| V.2.14 | Integrating ethics in organisational decisions |
• Results

• RQ1: WHICH ARE THE MOST RELEVANT GENERIC AND SPECIFIC COMPETENCES FOSTERED BY BUSINESS GAMES?

Table 5
Competences ordered by mean.

<table>
<thead>
<tr>
<th>Competence</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>[V.1.3] Decision making</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>4.21</td>
<td>0.832</td>
</tr>
<tr>
<td>[V.1.23] Contributing to a good working environment</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>4.19</td>
<td>0.773</td>
</tr>
<tr>
<td>[V.1.18] Working with uncertainty</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>4.12</td>
<td>0.821</td>
</tr>
<tr>
<td>[V.1.4] Drawing conclusions from information obtained or provided</td>
<td>146</td>
<td>2</td>
<td>5</td>
<td>4.03</td>
<td>0.846</td>
</tr>
<tr>
<td>[V.2.4] Developing strategies</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>4.03</td>
<td>0.913</td>
</tr>
<tr>
<td>[V.1.14] Reaching agreements</td>
<td>145</td>
<td>1</td>
<td>5</td>
<td>4.02</td>
<td>0.845</td>
</tr>
<tr>
<td>[V.1.11] Processing and analysing a set of global information concerning an undertaking</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>4.01</td>
<td>0.775</td>
</tr>
<tr>
<td>[V.1.9] Using new technologies</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>3.42</td>
<td>1.143</td>
</tr>
<tr>
<td>[V.2.14] Integrating ethics in organizational decisions</td>
<td>115</td>
<td>1</td>
<td>5</td>
<td>3.33</td>
<td>1.13</td>
</tr>
<tr>
<td>[V.1.10] Using communication platforms</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>3.19</td>
<td>1.299</td>
</tr>
<tr>
<td>[V.1.12] Resolving conflicts between groups</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>3.14</td>
<td>1.154</td>
</tr>
<tr>
<td>[V.1.11] Solving technical problems related to software</td>
<td>146</td>
<td>1</td>
<td>5</td>
<td>2.94</td>
<td>1.17</td>
</tr>
</tbody>
</table>
• Results

• RQ2: ARE THERE DIFFERENCES IN THE GENERIC AND SPECIFIC COMPETENCES ACQUIRED BY STUDENTS COMPARING ONLINE AND FACE-TO-FACE EXPERIENCES WITH A BUSINESS GAME? (t-test analysis)
• **Results**

• RQ2: ARE THERE DIFFERENCES IN THE GENERIC AND SPECIFIC COMPETENCES ADQUIRED BY STUDENTS COMPARING ONLINE AND FACE-TO-FACE EXPERIENCES WITH A BUSINESS GAME? (t-test analysis)

Learn by **DOING**.
• Results

• RQ3: WHAT EFFECT DO THE GENERIC COMPETENCES DEVELOPED BY THE BG HAVE ON THE VALUE STUDENTS PLACE ON TAKING PART AT AN INDIVIDUAL LEVEL? (Backward Stepwise Regression)

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Table 2
Linear regression of the variable: value of taking part in the game at an individual level.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardised coefficients</th>
<th>Standardised coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[V.B.06] Applying theoretical decision-making concepts</td>
<td>1.909</td>
<td>0.366</td>
<td>5.217</td>
<td>0.000</td>
</tr>
<tr>
<td>[V.B.08] Solving deadline-related problems</td>
<td>0.258</td>
<td>0.086</td>
<td>3.006</td>
<td>0.004</td>
</tr>
<tr>
<td>[V.B.09] Using new technologies</td>
<td>0.229</td>
<td>0.086</td>
<td>2.653</td>
<td>0.010</td>
</tr>
<tr>
<td>[V.B.17] Ability to innovate</td>
<td>0.174</td>
<td>0.075</td>
<td>2.320</td>
<td>0.023</td>
</tr>
<tr>
<td>[V.B.19] Influencing other people</td>
<td>-0.246</td>
<td>0.090</td>
<td>-2.720</td>
<td>0.008</td>
</tr>
</tbody>
</table>

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Dependent variable: E.01. Do you think you made a valuable contribution to the game at an individual level?
• Results

• RQ4: WHAT EFFECT DO THE GENERIC COMPETENCES DEVELOPED BY THE BG HAVE ON STUDENTS’ SATISFACTION AS A TEAM MEMBER? (Backward Stepwise Regression)

Are you satisfied with your experience in the game as a team member?

Table 3
Linear regression of the variable: satisfaction with the game as a team member.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardised coefficients</th>
<th>Standardised coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Standard error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.475</td>
<td>0.507</td>
<td>0.176</td>
<td>2.908</td>
</tr>
<tr>
<td>[V.B.01] Processing and analysing a complete set of global information on a company</td>
<td>0.200</td>
<td>0.114</td>
<td>0.197</td>
<td>1.759</td>
</tr>
<tr>
<td>[V.B.04] Drawing conclusions from the information obtained or given</td>
<td>−0.204</td>
<td>0.108</td>
<td>−0.197</td>
<td>−1.898</td>
</tr>
<tr>
<td>[V.B.06] Applying theoretical decision-making concepts</td>
<td>0.380</td>
<td>0.104</td>
<td>0.415</td>
<td>3.666</td>
</tr>
<tr>
<td>[V.B.12] Resolving conflicts between groups</td>
<td>0.293</td>
<td>0.080</td>
<td>0.385</td>
<td>3.683</td>
</tr>
<tr>
<td>[V.B.17] Ability to innovate</td>
<td>−0.201</td>
<td>0.100</td>
<td>−0.231</td>
<td>−2.004</td>
</tr>
<tr>
<td>[V.B.20] Accepting other people’s influence</td>
<td>0.309</td>
<td>0.101</td>
<td>0.305</td>
<td>3.075</td>
</tr>
</tbody>
</table>

Dependent variable: E.02. Are you happy with your experience in the game as a team member?
Results

- RQ5: WHAT EFFECT DO THE GENERIC COMPETENCES DEVELOPED BY THE BG HAVE ON STUDENTS’ LEARNING EXPECTATIONS? (Backward Stepwise Regression)

Did the game meet all your expectations after you took part?

Table 4
Linear regression of the variable: Meeting expectations after taking part in the game.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardised coefficients</th>
<th>Standardised coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Standard error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>-0.643</td>
<td>0.489</td>
<td>-1.315</td>
<td>0.193</td>
</tr>
<tr>
<td>[V.B.02] Processing and analysing partial information on parts of a company</td>
<td>0.314</td>
<td>0.083</td>
<td>0.301</td>
<td>3.764</td>
</tr>
<tr>
<td>[V.B.03] Taking decisions</td>
<td>0.370</td>
<td>0.089</td>
<td>0.337</td>
<td>4.178</td>
</tr>
<tr>
<td>[V.B.11] Solving software-related technical problems</td>
<td>0.242</td>
<td>0.064</td>
<td>0.310</td>
<td>3.768</td>
</tr>
<tr>
<td>[V.B.23] Helping create a good working environment</td>
<td>0.261</td>
<td>0.099</td>
<td>0.220</td>
<td>2.643</td>
</tr>
</tbody>
</table>

Dependent variable: E.03. Did the game meet all your expectations after you took part?
• Discussion

• Do Business Games increase students employability?

1. Capacity of Analysis and synthesis
2. Capacity to learn
3. Capacity to apply knowledge in practice
4. Elementary computing skills
5. Capacity to adapt to new situations

1. Problem solving
2. Decision making
3. Teamwork
4. Information technology
5. Management skills
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• Discussion

• Do Business Games have the same impact on generic competences at an individual level than in a team level?

Assessment of Individual work (5) ≠ Satisfaction as a team member (6) ≠ Students’ expectation (4)

16/23 generic competences have the greatest influence on students’ learning
• Conclusions

1. The EHEA focuses on competences. New learning tools are needed
2. Business games constitute a relevant e-learning method in management training
3. Students (online and face-to-face) are satisfied with the competences (generic and specific) developed participating in the Business Game
4. Most of the competences were best valued by the online group
5. The Business Game foster some competences considered relevant for the labour market.
6. 16/23 competences influence different learning results and practically none of them coincide
7. Only the ability to innovate has an overall negative influence on the learning results (value and satisfaction)
Thank you for your attention .... and

...  

Do you have any question?

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