TOWARDS A TABLE-TOP BOARD GAME FOR SOUTH AFRICAN HIGHER EDUCATION ACCOUNTANCY STUDENTS

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─Abstract ─

A growing body of literature on undergraduate teaching and learning indicates that lecturers should constantly amend their teaching practices and pedagogical framework. Responses from the business world and the accounting profession indicate that lecturers should incorporate workplace skills, as well as the practical application of theory in their teaching practices. Teaching and learning research across disciplines suggests that the use of games in classrooms could not only address the skills required in practice, but also enhance students' motivation to learn. The objective of this paper was to develop a table-top board game for accounting students to address the skills they require in the workplace, but also to apply theoretical concepts learnt by playing the game in order to motivate students to deepen their learning. This paper was designed as a locally bound case study. Accounting students, as research participants, played the custom-made table-top board game and later, by means of a questionnaire, reflected that they felt motivated to learn subject matter through playing the game. The game also inspired them to apply the theory they previously learnt in order to progress in and be successful in the game. The game was also conducive to developing other soft skills. The authors postulate that the use of a board game could change the way students learn, how students and lecturers interact with one another, as well as how lecturers adapt their approach to teaching and learning. The research indicates that using a board game for accountancy education could contribute towards the redesign of students' classroom experiences.

Key Words: *Accountancy education, Teaching and Learning, Games for learning, Skills, Motivation*
JEL Classification: A19, I29, M49

1. INTRODUCTION

Using games for learning is not new. Numerous studies support and promote the use and effectiveness of games for teaching and learning across a wide range of learning areas (Feinstein, 2001; Wolfe & Crookall, 1998; Keys & Biggs, 1988). When using games for learning, many authors are of the opinion that games could address some of the limitations experienced during traditional teaching and learning practice. Employing games in classrooms could therefore form part of lecturers' palette of teaching methodologies. Also, previous research has identified the necessity of games for learning while developing cognitive and affective learning, facilitating interactivity, promoting collaboration, and establishing peer and active learning (Ruben, 1999) as well as students' ability to participate in complex social practices, learn new knowledge, and perform in novel and changing situations (Squire & Jenkins, 2003).

Academics have considerable influence in setting their curriculum and subject structures, curriculum design, selection of texts and learning material, and implementing of teaching methods, which also include the assessment and evaluation of students' work (Boyce, 2004). The use of games in classrooms could support an array of skills development aspects, like strategic thinking, planning, communication, application of numbers, negotiation, group decision-making and data-handling (Kirriemuir & McFarlane, 2004). Within the accountancy education environment, this denotes that students could be given opportunities to develop the skills they require in the workplace, e.g. to clearly articulate different perspectives, views, ideas, and concepts. By using games in classrooms, students could develop personal and collective positions on issues, and to discover possibilities for activating such positions through praxis.

2. LITERATURE REVIEW

2.1 Call for change in accountancy education

Current business environments demand certain skillsets from new accountants entering the workplace (Stumke, 2015). Important elements of an accountant's skillset are the ability to analyse, innovatively solve problems, communicate effectively and relate to clients (Howieson, 2003). Therefore, accountancy lecturers should pre-empt a shift in the perceived skills accountants should encompass and thenceforward design and develop courses and teaching methods which are interdisciplinary and analytical in their orientation. Accountancy lecturers should think creatively in order to uncover practical solutions for the challenges they encounter, while grappling with issues of relevancy of accountancy education (Fouché, 2006).

Tucker and Lowe (2014) allude to the increased criticism from accounting professionals in the workplace and point out that the teaching methods of accountancy lecturers are often not aligned to the needs of the profession or the skillsets new accountants require in the workplace. Albrecht and Sack (2000) indicate that responses from the business world and the accounting profession make reference to students' deficient knowledge of the practical application of theory. Therefore, accountancy lecturers' teaching methods should be augmented to include both practical application of theoretical concepts and the development of the essential students skills aimed at the workplace (Fouché, 2013; Fouché & Visser, 2008). The world of contemporary business places a premium on knowledge as a source of competitive advantage; creating a need for accountancy lecturers to develop methods which could interlink business needs with university-taught theory, necessitating creative interaction between workplace and theoretical issues (Starkey & Madan, 2001).

2.2 Linking gameplay to lecturers' palette of teaching methodologies

Creative thinking regarding accountancy education, students' interest in the theory and their motivation to learn, should be paramount in creating a stimulating learning environment. Fouché is of the opinion that it is essential to develop augmented methodologies for accountancy education which will address the shortcomings and criticisms the world of business puts forward in a practical manner, directly speaking to classroom-based methods of teaching and learning.

(Fouché, 2013; Fouché, 2006). Fouché advocates games for learning as a means to address the identified skills as well as the practical application of theory, in order to create a stimulating learning environment to motivate students to study.

Games are highlighted as one of the more recent developments in teaching and learning (Johnson, Adams Becker, Estrada, & Freeman, 2015; Stirling, 2013). Games are hailed as one of the fundamental ways in which students learn and develop inductive reasoning skills (Johnson *et al*., 2015). The benefits of participating in informal activities, such as games, extend beyond the development of reasoning abilities (Gerber, Cavallo, & Marek, 2001). Despite these gains, many lecturers do not appreciate the benefits games afford to learning. Play has entertainment value. When combined with learning, it could transform learning experiences into memorable acquisitions of knowledge and skills (Trecher, 2011). When designed well, a game for learning contributes towards the ability of its professional audience to connect to the content, transfer the appropriate skills and knowledge effectively, and contribute towards appropriate value systems in line with the context (Gee, 2005). The Higher Education Edition of the New Media Consortium's 2015 Horizon Report (Johnson *et al*., 2015) stipulates that games are one of the primary ways that students learn in and outside classrooms. The report also draws attention to the increasing number of universities, such as Stanford and MIT, which are increasingly leaning towards the use of games for learning, due to their perceived beneficial value. These institutions are convinced that when lecturers integrate games for learning into the curriculum, they create real-world activities for students to learn from (Johnson *et al*., 2015). Games create a non-threatening, playful environment, and they provide engagement between students and lecturers that reinforce social and academic relationships. They also create opportunities for students to apply their knowledge and skills to specific learning outcomes. Gerber *et al*. (2001) reveal that an enriched informal learning environment, coupled with inquiry-based teaching procedures in the formal classroom environments, provide students with opportunities for direct experiences, cognitive conflicts and social interactions while they develop their scientific reasoning abilities. Games for learning not only allow students to engage with visual metaphors, but also interact with problem-solving in a social learning context.

A primary aim of teaching and learning is to create opportunities for students to process and internalise content and solve real-life problems (Onuebunwa, 2011). Games for learning do not merely provide opportunities for entertainment, they are also tools for learning as they encompass essential learning elements (Oblinger, 2004). Students benefit from games for learning when they are used (i) for demonstrations during lectures; (ii) across more than one contact session as a central learning activity when learning outcomes scaffold one on another; (iii) as homework assignments where they compel students to engage with challenges; (iv) in informal assessments and formal evaluations; (v) as part of a palette of teaching and learning media; (vi) to provide elements of urgency, complexity, learning by trial-and-error and competition to learning; (vii) to support active learning; (viii) as support for experiential and problem-based learning; (ix) to foster understanding of information to the learning context; (x) to invent learner-centred approaches which provide context-related immediate feedback from peers; and (xi) to motivate students to deeply engage with materials (Squire & Jenkins, 2003).

Gameplay contributes to students' motivation to learn. Games for learning inspire them to seek information to progress in and conquer the game. Successful gameplay also contributes to recognition and respect from their peers and it also fuels peer participation (Oblinger, 2004). Students own their learning while they participate in social gameplay; they also develop professional social skills when they acknowledge one another's skills and potential. These aspects serve as intrinsic motivation, which more effective than extrinsic motivation from good grades the lecturer bestows on them (Herz, 2002).

Authors (Oblinger, 2004; Squire & Jenkins, 2003; Herz, 2002) indicate that games for learning connect traditional teaching methods with augmented learning as required by the world of work. Prensky (2002) recommends that lecturers should think about their teaching methodologies from a gameplay point of view as "there is no end to the ways one can inject more gameplay—active engagement at every second—into traditional education." Additionally, he suggests that the narrative component of gameplay is significant in students' learning of *how* to play the game, as well as in their engaging *with* the learning content.

2.3 Linking gameplay to skill development

Due to continuous changes to the business world, accountants are required to attain more than just regurgitated knowledge Fouché (2013). He argues that the top ten skills required to advance in the workplace relate to: (i) seeing the bigger picture, (ii) making decisions, (iii) providing leadership, (iv) solving problems, (v) taking initiative, (vi) planning and managing strategies and projects, (vii) leading effectively, (viii) striving to add value, (ix) interacting with diverse people and cultures, and (x) motivating others. Dewey (1916) contends that "education is not an affair of telling and being told, but an active constructive process." Games for learning, when used as a teaching and learning experience, offer opportunities for students to learn by doing and to become engaged in authentic learning experiences in a professional social context.

3. PROBLEM STATEMENT

Classroom-based learning requires a lecturer, students and content, irrespective of the learning environment, which includes atmosphere and institution (Richardson, 1997). The interaction between lecturers and students primarily takes place where the lecturer conveys the content and the students study the content (Zhang, Zhao, Zhou, & Nunamaker Jr, 2004). There is, however, also a non-content based relationship, which includes expectations, perceptions and motivation, between the lecturer and the student; which influences the teaching and learning process. The interaction between lecturers and students via the content (curriculum, course, and programme) takes place by means of methodology, which includes teaching strategies, practices and assessment (Fouché, 2006). In spite of this knowledge, it seems that a teaching method for accountancy education that addresses skills, application of theory and motivation of students (Fouché, 2013; Boyce, 1999) as the business world requires, still needs to be developed. Accounting science lecturers at a traditional rural university designed a table-top board game, as part of their teaching methodologies, to simultaneously address the needs of the world of work and students alike.

4. RESEARCH DESIGN AND METHODOLOGY

Tang and Hanneghan (2014) suggest that the design of a game should take place in phases. This paper reports on the pilot study of a table-top game design. Content modules for the pilot study included the learning outcomes for Tax and

Law. The game comprised a board, question cards, avatars, money, dice, and a set of rules. A minimum of two and a maximum of eight students could play simultaneously. Four copies of the board game were employed during the testing of the prototype table-top game. Further development of the game will incorporate data and feedback received from pilot evaluation.

The local bounded case study aimed to determine:

- if the use of a table-top board game could address skills for the workplace
- if students could apply theoretical knowledge during gameplay
- students' and lecturers' attitudes towards a board game for learning.

The empirical research encompassed the identification of learning activities, learning objectives, game design, game components and evaluation of the board game. The pilot study evaluated the prototype against the learning objectives. Tang and Hanneghan (2014) suggest that it is best to perform a pilot study where participants play-test the prototype game as part of an extended game evaluation. After completion of all phases, the game could be tested for final release. Data were collected from students who participated in the pilot study. The researchers followed non-probability convenience and judgement sampling strategies (Table 1). Students completed a questionnaire after they played the game. The use of limited sample sizes to evaluate the use of games for learning during pilot studies are well documented in the literature. Atherton, Zhuang, Bart, Hu, and He (2003) describe their sample size of 7 participants who participated in a pilot study of a board game; Jannink *et al*. (2008) selected twelve participants for their pilot study on the value of a board game for learning; and (Fukuyama & Morita, 2013) used twenty students in a Japanese pilot test on a board game. Our employment of 27 students in this pilot evaluation therefor relates to similar sample sizes of other international studies (Table 1). However, due to the limited data which were collected, the researchers conducted a preference study on the use of the table-top board game instead of an experimental study.

A diverse gamut of students participated in the pilot study. White, Black Indian, male and female-students from diverse cultures typically do not participate with case studies of limited scope. However, in this case, this diversity directly links to the skill requirement of interaction required from the world of work (Tucker & Lowe, 2014). Data were obtained from 27 participants who completed the

questionnaire. The questions were explained to the students who participated voluntarily and anonymously. Not all students who played the game completed the questionnaire (Table 1). Due to anonymous participation, the researchers could not request additional individuals to complete the questionnaires to increase the sample size. Moreover, no incentives were given for participation in the study, aligning the process with Ethics Clearance conditions.

Table 1: Participant Characteristics

Participant groups (G)	Description	Participants who played the game	Participants who answered the questionnaire
G 1	Honours students (year level 4)	40	10
G 2	Undergraduates (year level 2)	15	9
G 3	Lecturers in accounting sciences	8	8
		55 students 8 lecturers	19 students 8 lecturers
	Total	**63**	**27**

Fouché (2006, p. 159) permitted the use of the standardized questionnaire he developed during the *Commercium*™ project—a board game developed to meet the teaching and learning environment needs of first-year accounting students. The questionnaire was adapted for the pilot study according to the objectives of the study. It comprised five sections: (i) biographical information; (ii) evaluation of required skills; (iii) evaluation of subject content; (iv) evaluation of the teaching methodology; and (v) evaluation of the effect of the game on the students' attitude towards playing the game in a teaching and learning environment. The questionnaire encompassed Likert and Semantic differential scales, which required the participants to select alternatives which were most applicable to them. The participants completed the questionnaire on a multiple-choice answer sheet. Their responses were electronically captured and statistically analysed with SPSS v20 (SPSS Inc, 2012).

5. RESULTS AND DISCUSSION

5.1 Application of knowledge

Table 2 indicates students' application of knowledge according to Likert scale averages (modes 1 to 5) where 1 is "strongly disagree" and 5 is "strongly agree.

Table 2: Subject Knowledge of Students in Tax and Law Courses

Questions C19-C22		Agree Mode 4	Avg %
C1	**Basic law concepts and principles**		
19	Law context and the role (purpose) of the Law subjects	4.250	89
20	Conceptual framework and Law concepts	4.200	84
C2	**Basic tax concepts and principals**		
21	Law context and the role (purpose) of the Tax subjects	4.500	90
22	Conceptual framework and Tax concepts	4.450	89
	Average	4.350	87

1 = strongly disagree; 5 = strongly agree

The students responded positively at a mode of between 4.200 and 4.500, and at an average rate of 87%. They indicated that they were able to apply their knowledge in the place of work and that they grasped the link between theory and practice.

5.2 Skills

Tables 3 and 4 indicate the students' perceptions of their technical and soft skills and feedback related to their skill according to Likert scale averages (modes 1 to 5) where 1 was "strongly disagree" and 5 was "strongly agree." These tables indicate a positive response above eighty per cent which also indicates that the game contributes towards skills development and a positive learning environment.

Table 3: Student's Perceptions of their Technical and Soft Skills

Questions B1- B18		Neutral Mode 3	Agree Mode 4	Avg %
B1	**Technical skills**			
B9	Critical problem solving	3.850		77
B10	Oral and written communication		4.200	84
B11	Effective learning		4.000	80
B12	Technical competencies		4.100	82
B13	Analytical ability/logical argument	3.700		74
B14	Link between modules		4.400	88
B2	**Soft skills**			
B15	Group work and effective functioning	3.800		76
B16	Motivation and self-management		4.300	86
B17	Interpersonal communication		4.350	87
B18	Problem solving/case studies		4.200	84

	Average	**81.8**

1 = strongly disagree; 5 = strongly agree

Table 4: Students' Participation and Feedback Related to Skills

Question E		**Agree Mode 4**	**Avg %**
E47	Playing the game was an effective learning experience	4.350	87
E49	I enjoyed the social aspect of playing the game	4.750	95
E50	I took playing the game seriously	4.150	83
E52	Playing the game demanded insight and application of knowledge	4.300	86
E53	The game increased my insight into the relationship between theory and practise	4.200	84
	Average	**4.350**	**87**

1= strongly disagree to 5 = strongly agree

5.3 Students' attitude

The results indicate that the students' attitudes towards the game were positive and they enjoyed playing the game. The mode in Table 5 differs from previous tables with a scale of 1 to 7 with 1 as "extremely positive" and 7 as "extremely negative."

Table 5: Students' Attitude towards Playing the Game

Q	**Description**	**Mode G 1**	**Mode G 2**	**Avg %**
58	Likeable/Unlikeable	1	1	1.578
59	Good/bad	1	1	1.842
60	Happy/Unhappy	1	1	1.736
61	Comfortable/Uncomfortable	1	2	2.263
62	Calm/Tense	6	1–3	3.052
63	Full/Empty	2	1	2.736
64	Natural/Artificial	1	1	2.105
65	Exciting/Dull	1	1	1.526
66	Fresh/Suffocating	1	1	1.789
67	Pleasant/Unpleasant	1	1	1.526

1 = extremely positive; 7 = extremely negative

Table 5 indicates that the students' (G1 as honours students; G2 undergraduate students) attitudes towards the game were overwhelmingly positive. They indicated that playing the game was pleasant, exciting and likeable. The negative

attitudes detected related to students' perceptions that they felt tense, empty and uncomfortable. These negative attitudes could be contributed to experiences of the group work element. In general, the students experienced a positive attitude towards playing the game because of the excitement of playing the game, as well as the way the game simulated the business environment and linked theory to practice.

5.4 Lecturers' attitude

The lecturers' attitudes (Group 3) towards the game are indicated in Table 6. They were asked to participate in the study as they would employ the final game in their teaching and learning. The lecturers' attitudes towards the game were positive and they liked playing the game. The response mode is indicated as 1 to 7 with 1 as "extremely positive" and 7 as "extremely negative."

Table 6: Lecturers' Attitudes towards Playing the Game

Question	Description	Mode	Avg %
38	Likeable/Unlikeable	1	1.375
39	Good/bad	1	1.375
40	Happy/Unhappy	1	1.625
41	Comfortable/Uncomfortable	1	1.750
42	Calm/Tense	6	2.750
43	Full/Empty	2	2.250
44	Natural/Artificial	1	2.125
45	Exciting/Dull	1	1.250
46	Fresh/Suffocating	1	1.125
47	Pleasant/Unpleasant	1	1.375

1 = extremely positive; 7 = extremely negative

Although the lecturers mostly felt tense while they played the game, their overall experience was positive. Their negative responses (indicated as a 6) could be interpreted as that they were hesitant to give wrong answers to the questions on the playing cards while playing the game. Games for learning were new to them, and they described their experiences as tense, although not unpleasant or suffocating. The lecturers labelled the game as "fresh and exciting."

5.5 Validity and reliability of the research

The internal consistency of the instrument was assessed with a Cronbach Alpha coefficient (Clark & Watson, 1995). The construct validity (indicated as a factor analysis), and the reliability (indicated as a Cronbach-alpha coefficient) of the groups (G) encompassed in pilot study are listed in Table 7.

Table 7: Reliability and Construct Validity for Students' Responses

Section	Question	Avg G 1	Avg G 2	Avg G 1 & 2	Cronbach a G 1 & 2	Mean G 1 & 2
B1 Technical skills	6	4.033	4.033	4.033	0.654	0.250
B2 Soft skills	4	4.025	3.975	4.000	0.703	0.414
C1-4 Subject knowledge	8	4.100	4.275	4.287	0.498	0.113
D Teaching method	14	3.978	4.185	4.081	0.824	0.265
E Playing the game	14	4.135	4.328	4.231	0.839	0.281

Gliem and Gliem (2003) posit that a Cronbach alpha of 0.8 is a reasonable goal to aim for as a high value may indicate good internal consistency. Cortina (1993) contends that this may not always be the case, as the sample size should also be considered. Pallant (2013) argues that Cronbach alpha values are also sensitive to the number of items in a scale, and with short scales (less than ten items) it is common to find low Cronbach values of 0.5 or less. In cases where the Cronbach alpha is 0.5 or lower, it is appropriate to report the mean inter-item correlation for the items (Table 7).

6. CONCLUSIONS AND RECOMMENDATIONS

From the result indicated in the tables, the main reason why the game could be considered as an effective learning tool is that gameplay spurred students' motivation. Students aimed to win in the game or beat other teams. They were extremely competitive as they wanted a turn to play and score points and to win. The results indicated that the table-top board game: (i) created and supported an enhanced teaching and learning environment, as the students genuinely engaged during gameplay; (ii) assisted learning, as the students were of the opinion that the game intensified their competencies and improved their skills; (iii) created an unstructured learning environment which incorporated practical experiences which required more than just knowledge replication; and (iv) provided opportunities to work with and learn from their peers—an aspect which they

enjoyed. Incorporating gameplay in an accountancy classroom fused theory and practice enabled the students to relate to real world scenarios.

The objectives of the pilot study were met and consecutive phases can now commence. The results of this study indicate that using a table-top game for learning in accountancy education could not only contribute towards the redesign of students' classroom experiences, but would also address the requirements of the world of work for new accountants.

7. ACKNOWLEDGEMENTS

This work is based on the research support in part by Scholarship of Teaching and Learning (SoTL). Opinions, findings and conclusions or recommendations expressed in this material are those of the authors and the SoTL grant givers do not accept any liability in regard thereto. The authors wish to thank Prof Jaco Fouché for permission to use and adapt his questionnaire.

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