

# **Authentic Learning and Marketing Education in a Marketing Simulation Game**

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## List of Abbreviations/Glossary of Terms

Authentic learning	“...[the] alignment of student learning experiences with the world for which they are being prepared” (McKenzie et al. 2002, p.427). The immersion of the learner in the culture of the field where they can learn from experts (Driscoll, 2000).
Collaborative environment	Students had the opportunity to communicate with their facilitator and team members in the discussion forums
Discussion forums	Email forums and in-class forums
Email identification	For example (S1 E2013) - Student one email entry 2013
Focus group identification	For example (S1FG1) - Student One Focus Group One; For example (S2FG2) - Student Two Focus Group Two
Learning environment	Simulation game and collaborative environment
Music2Go	The commercial simulation game
Real-to-life	Contextualised in a real as opposed to a contrived situation (Clarke, Litchfield, & Drinkwater, 2010; Fowler Morse, 1997).
Simulation game tasks	Participation in email forums, in in-class team meetings inputting decisions into the game and assessment tasks

Simulation learning environment	TAFE Virtual Campus, classroom organisation, email forums, and the simulation game
TAFE	Technical and Further Education
TAFE VC	Technical and Further Education Virtual Campus online website
VET	Vocational Education and Training

## **Abstract**

This research study investigates the effect an online marketing simulation game had on Technical and Further Education (TAFE) Marketing students' learning; more specifically the effect participating in the game had on students' authentic learning experiences. "Authentic learning involves [the] alignment of student learning experiences with the world for which they are being prepared" (McKenzie et al. 2002, p.427). Similarly, Driscoll (2000) describes authentic learning as the immersion of the learner in the culture of the field where they can learn from experts. Despite the considerable literature on the use of simulation games in marketing education there is little research on students' experiences, including student perceptions of simulation games and learning. Consequently this research study investigates the experiences and perceptions of Technical and Further Education (TAFE) Marketing students participating in an online marketing simulation game addressing two research questions: (1) How does a marketing simulation game support or inhibit TAFE marketing students' authentic learning? (2) What factors influence student authentic learning while participating in a marketing simulation game?

Qualitative data captured the experiences and perceptions of twelve Technical and Further Education (TAFE) Marketing students participating in the online marketing simulation game. Two focus groups were conducted during this study: one during the simulation exercise to gain insights into the students' experiences and perceptions "in the moment", the second at the completion of the simulation game exercise. Observational data was collected from student and team contributions in class team meetings, observing discussions and utterances, and participation in email forums. A questionnaire was designed to collect data on students' perception of their learning in the simulation game environment, students' perception of the game and students' perception of the discussion forums.

To ascertain how the game supported or inhibited authentic learning, the simulation game's tasks (participation in discussion forums and decision making tasks) and game design elements were investigated. This research drew on literature that identified authentic learning characteristics and authentic learning design requirements. The data supports the notion that elements of the game's design were embedded in authentic contexts providing opportunities

for student authentic learning. However, it was also found that other design elements appeared to inhibit authentic learning opportunities, for example the research findings suggest the discussion forums in this game needed to be designed to provide synchronous instead of asynchronous communication.

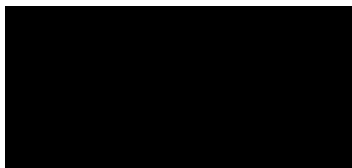
Motivational, collaborative and scaffolding factors have been identified in this research that supported students' authentic learning and others have been identified as inhibitors of authentic learning. The research has identified scaffolding to be a significant factor in influencing the authentic learning experiences of participants. Scaffolding helped develop students' cognitive competence, encouraged students' motivation and created and supported a collaborative environment. Scaffolding provided students with opportunities to participate in authentic learning activities. The findings suggests the facilitator could have provided more scaffolding to support less abled learners' cognitive competence early on in the game and encourage more participation in the collaborative environment.

This research, although limited in its scope, contributes to understanding factors that influence students' authentic learning experiences in a simulation game. It also contributes to the limited research that has been conducted on students' experiences and perceptions in relation to simulation games and learning in marketing education.

## Statement

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other institution and, to the best of the candidate's knowledge contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signed

A solid black rectangular box used to redact the signature of the candidate.

Jeffrey Skolnick

Date: 26/2/2014

Ethics approval for this research has been received from Monash University Standing Committee for Ethics in Research on Humans (Reference number: CF09/0209–2009000079).

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## Chapter 1. Introduction

I was introduced to computer simulation games in 1998 in my second year teaching Marketing in the Vocational Education and Training (VET) sector. The units Strategic Marketing Simulation and Marketing Strategy were capstone units in the Advanced Diploma of Marketing course. Students in the simulation unit were required to put their skills and knowledge into practice as they took on the role of managers of a Sports Shoe Manufacturing company. These classes had a distinct difference from my other classes. Students spent class time discussing results and strategies in pursuit of solutions to their unique problems, relying on one another to help their company succeed. I can recall my first experience in this learning environment. As I wandered around the class and listened to and observed teams in action I could sense excitement and anticipation. The good spirited heckling by competing teams at the start of each class added to the atmosphere. It seemed to me that students were no longer passive observers in class but in control of their activities, decisions and actions during this time. The authentic nature of the activity led the students (although not necessarily conscious of this) to take control of their own learning.

The introduction of a Business Services National Training Package (ANTA, 2001) in 2001 brought a significant change to the makeup of the Advanced Diploma of Marketing course, including the omission of the compulsory simulation unit titled Strategic Marketing Simulation. Prior to this change I had been teaching this unit for a number of years. A few years later I decided to re-introduce simulations into my teaching. Reflecting on my earlier years, I felt there was something missing in my teaching and that a simulation game would make the classroom experience more exciting for the students and, for that matter, the teacher too. The commercial simulation I introduced to the class (2003-2005) followed a similar scenario to the earlier one: this time students were in charge of a bike manufacturing company. To win this game, students needed to outsmart a competing bike manufacturer (the computer). For the first two years my classes appeared to enjoy the game and I believed it was a good way to put their marketing theory into practice, although the sense of student excitement and purpose was not the same as in my previous experience. This was particularly pronounced in the third year (2005) in which students were palpably less eager to commence playing the game and lacked the excitement I had seen in other classes. Although I have only anecdotal evidence to make any conclusions I believe two factors contributed to this poor

student engagement with the bicycle manufacturing simulation: there was no official start to the game, (students could complete the simulation at their own pace) and students competed against the computer not each other. Consequently, I gave some serious thought as to whether to use simulations in future classes.

I did not use simulations again until 2008; this particular game was conducted online, teams competed against one another not the computer and there was even one student who ‘played’ off campus and was never seen by the on-campus students. I had to convince the students that I was not this student (who was the ultimate winner that year). Again, the experience from my observation was positive, students were eager to know how they performed relative to their class mates and overall showed an excitement not always seen in other class activities. The students took ownership of the activity and although they knew they were not running a real firm, they appeared to see it as an authentic exercise.

What makes some student cohorts excited and engaged in simulated environments and others less so is something that has intrigued me. Similarly, I was fascinated with why some students immerse themselves in the simulation environment and take control of their activities, decisions and actions in an authentic way while others do so to a lesser degree or not at all. After reading the empirical research literature surrounding simulations and adult learning, I came to the conclusion that there was a gap in the literature which seemed central to my concern. While there was considerable research at the nexus of simulation and marketing education, there was little knowledge of the student experience in a marketing simulation game and its relationship with principles of authentic learning.

## **1.1 Marketing education: experiential learning and simulations**

The marketing educator’s role has shifted from teaching to supporting student learning (Duke, 2000; Elam & Spotts, 2004). Smart, Kelley and Conant (1999) also describe the change: “Overall, the traditional teacher role, characterized primarily by directed, mostly one-way communication, professional distance, and position-based authoritative respect, has given way to a learning facilitator role” (p. 214).

Marketing educators are well aware of the need to change as Brennan, Willetts and Vos (2008) explain: “Marketing educators have long accepted that they cannot rely solely on didactic methods; the nature of the subject necessitates that, in addition to addressing a body of knowledge through lectures and reading, students must engage in active learning” (p. 2);



and as Kams (2005) notes, marketing educators are moving in this direction. “Marketing educators are employing a wider set of learning activities, including increased emphasis on active and experiential learning, in pursuit of more well-defined learning goals” (p. 163).

Kaplin, Piskin and Bol (2010) describe the dramatic changes in digital technology in recent years and the impact this has had globally from a business and educational perspective. “The traditional teacher centered classroom structure is being replaced by new student-centered approaches, with many instructors striving to develop innovative methods to reflect this new phenomenon in marketing education” (p. 50). The opportunities educators, including marketing educators, have to engage students in active and experiential learning have never been stronger. Technological developments such as the emergence of social networking platforms including Facebook, Twitter, Flickr and Blogger and the improvements in online educational tools such as simulation games and discussion forums will provide exciting opportunities for educators and learners to better engage (Kaplin et al., 2010). Galarneau and Zibit (2007) stated that as these interactive programs become more pervasive, educators cannot expect students to continue to be passive recipients of information.

As curriculum is further developed to move in step with the expectations of business, so will the need for marketing educators to adopt experiential teaching methods. As stated by Barr and Tagg (1995), “In an attempt to meet the demand for a qualified workforce, business schools are transforming their marketing curricula to address the paradigm shift from the long-established instructional focus to a modern learning focus” (p. 13).

Simulation games are one such experiential learning activity that more marketing educators may want to consider. According to Gentry (1990) these games allow students to:

get a feel for the ‘messiness’ and ambiguity associated with real world situations. It might be enlightening to a student to listen to a lecture on organizational conflict; however, when it is encountered in the team play of a simulation game and there is no one with the authority to reconcile the opposing views, the messiness associated with organizational conflict becomes very real. (p. 14)

Marketing simulations have been available as vehicles for learning for more than 50 years (Brennan, Willetts, & Vos, 2008; Tonks, 2002). “Simulations are experiences that provide an authentic learning environment that scaffolds novices’ problem solving while minimizing the

risks of “practicing” their newly learned skills in a ‘real world’ setting” (Ingram & Jackson, 2004, p. 297). Simulation games provide opportunities for learners to engage in authentic learning (Dickinson & Faria, 1997; Galarneau, 2005; Gee, 2007; Gredler, 2004; Ingram & Jackson, 2004; Starcic, 2008), allowing learners to participate in authentic activities situated in real-world contexts (Alessi & Trollip, 2001; Jonassen, 2000; Jonassen et al., 1997; Lunce, 2006). It is authentic learning activities such as these that expose students to the messiness of real life decision making, where there may not be a right or wrong answer but one solution may provide a better outcome (Lombardi, 2007). It is authentic learning exercises such as these that I believe have made my classes more engaging and exciting. Research has found that students have more enjoyment from and show a greater commitment to playing simulation games compared to other educational methods such as lectures, case studies or readings (Jennings, 2002; Lowe, 1980; Malik & Howard, 1996).

## **1.2 Problem statement / Research questions**

This research is concerned with the student experience and perceptions of TAFE Marketing students playing a marketing simulation game and the impact the game has on their learning, more specifically authentic learning. The majority of the research tools are qualitative to help understand the different constructions and meanings students place on their experiences within the simulation learning environment. Students’ experiences and perceptions of the marketing simulation environment are investigated in two focus group discussions, one questionnaire and the facilitator’s observations of student activities in an online discussion forum, in-class forums and engagement with the game itself.

Two research questions were investigated in this research.

1. How does a marketing simulation game support or inhibit TAFE marketing students’ authentic learning?
2. What factors influence student authentic learning while participating in a marketing simulation game?

## **1.3 Outline of chapters**

This thesis comprises eight chapters. Chapter 1 has presented a statement of the problem and research questions, a discussion of marketing and education and the move towards

experiential learning activities, and a discussion of marketing simulations as authentic learning environments.

Chapter 2 provides a review of the literature that relates to authentic learning design and simulation game environments, and is relevant to Research Question 1. The chapter also draws on literature in relation to motivation, collaboration and scaffolding and their influence on authentic learning, this is relevant to Research Question Two.

Chapter 3 outlines the methodological approach used in this study, explaining the research tools used were qualitative in nature to help understand the different constructions and meanings students place on their experience within the simulation learning environment. The chapter also describes the data collection instruments, the participants, the researcher's position, data analysis, ethics, limitations of this study, internal and external validity and a description of the learning environment this research is concerned with.

Chapter 4 discusses the marketing simulation game's learning environment in relation to the design principles outlined in Chapter 2 in order to ascertain how the game's design supported or inhibited authentic learning.

Chapter 5 provides some insight into motivational factors that encouraged or inhibited students' authentic learning experiences in this marketing simulation game.

Chapter 6 examines the extent to which collaboration influenced student authentic learning while participating in the marketing simulation game.

Chapter 7 discusses the influence scaffolding had on students' authentic learning experiences.

Chapter 8 provides a general conclusion, and discusses the implications and limitations of this research and directions/recommendations for future research.

## **Chapter 2. Literature Review**

This research is concerned with the experiences and perceptions of marketing students playing a marketing simulation game and the extent to which the game supports or inhibits students' authentic learning. This will involve an investigation of the learning environment's design and its impact on the authentic learning experience. Literature identifying simulation games as learning environments that provide students with authentic learning opportunities will be presented in Section 2.2. Literature relating to authentic learning design is presented in Section 2.3.

This research is also concerned about other factors that influence students' authentic learning, namely influences surrounding the game. In exploring the literature on authentic learning and specific readings of literature relating to simulation games, three key factors have been identified as influences on students' authentic learning experience: student motivation, collaboration and scaffolding. These are discussed in Sections 2.4, 2.5 and 2.6 respectively.

To ascertain the extent to which the marketing simulation game and factors surrounding the game influenced students' authentic learning it is important to identify what is meant by authentic learning.

### **2.1 Authentic learning**

The literature offers two types of definitions of authentic learning: broad definitions and those that are more specific on conditions for authentic learning to take place. Thus McKenzie et al. (2002, p. 427) state that, "Authentic learning involves [the] alignment of student learning experiences with the world for which they are being prepared". Similarly, Driscoll (2000) describes authentic learning as the immersion of the learner in the culture of the field where they can learn from experts. According to Windham (2007) authentic learning is learning by doing. Students are involved in problem solving that experts in the field would use every day. They learn how to investigate problems that go beyond the textbook.

The literature on the necessary conditions for authentic learning (Appendix 1) offers five key conditions: these are 1) authentic tasks, 2) authentic problems, 3) metacognition, 4) student-directed learning, and 5) learning with others.

Authentic learning according to the literature involves learners participating in authentic tasks. These involve activities that go beyond the classroom (Newmann, 1996), allowing learners to mimic the work of professionals in the discipline (Rule, 2006; Windham, 2007). Authentic learning involves learners being involved in authentic problems, these involve real-world problems (Rule, 2006) that are open-ended with no one right answer (Rule, 2006; Windham, 2007) and involves inquiry (Newmann, 1996) to gain a deeper understanding of specific problems (Newmann, 1996; Windham, 2007).

Authentic learning allows learners to be involved in metacognition (Rule, 2006), that is learners construct their knowledge and build on what they already know (Newmann, 1996), they participate in deciding on what they need to learn and how (Kruger, Cherednichenko, Hooley, & Moore, 2001) and reflect on what they have learned (Herrington, Reeves, & Oliver, 2010).

In an authentic learning environment the learning structure is characterised by student-directed learning (Rule, 2006), whereby the instructor guides without strict guidelines or restrictions (Windham, 2007) and the teacher takes on the role of mentor (Rule, 2006).

Authentic learning involves learners learning with others. Learners work in groups (Kruger et al., 2001; Windham, 2007) and Rule (2006) goes further stating that learners need to engage in discourse and social learning in a community of learners. Literature has identified particular design ingredients necessary to create a learning environment that offers student the opportunity to experience authentic learning. These will be discussed in Section 2.3.

## **2.2 Simulation and learning**

### **2.2.1 Simulations and simulation games**

This research study investigated students participating in a simulation game, a distinction needs to be made between a simulation and a simulation game. A simulation and a simulation game are not the same thing. “To simulate is to model a (source) system through a different system which maintains (for somebody) some of the behaviors of the original system”

(Frasca, 2003, p. 223). “A simulation (or a simulator) is a device that attempts to recreate characteristics of the real world” (Beaubien & Baker, 2004, p. 52). Banks (1999) defines a simulation as:

the imitation of the operation of a real world process or system over time. Simulation involves the generation of an artificial history of the system, and the observation of that artificial history to draw inferences concerning the operating characteristics of the real system that is represented (p. 7).

A simulation on its own is not a game (Prensky, 2001). Kriz (2003) provided the following definition of simulation games:

Simulation games represent dynamic models of real situations (a reconstruction of a situation or reality that is itself a social construction). Simulation games help to mimic processes, networks, and structures of specific existing systems. In addition to mirroring real-life systems, simulation games incorporate players who assume specific roles (Kriz, 2003, p. 496).

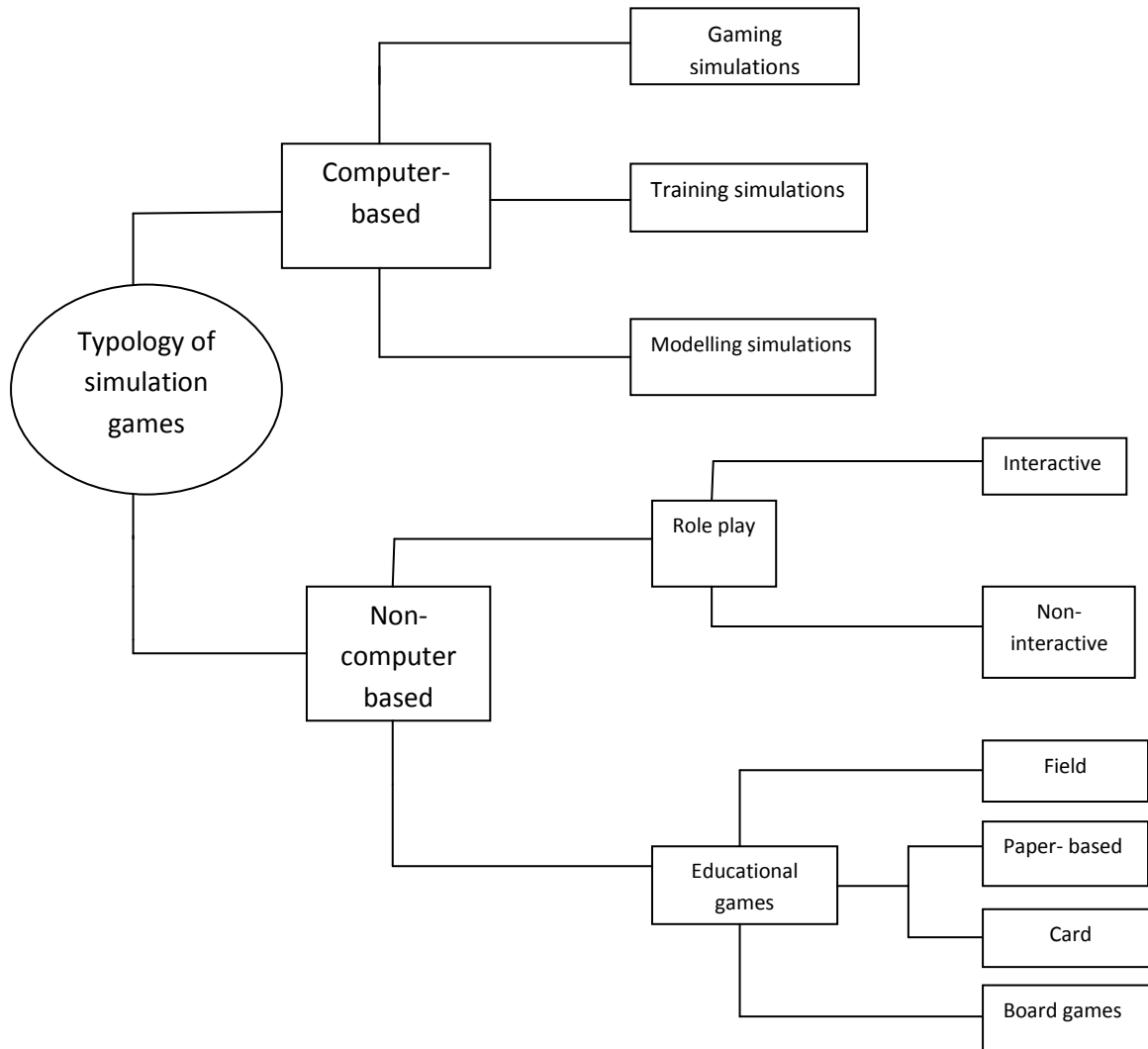
Prensky (2001) identified a simulation game as a simulation with some or all of the formal structural elements of games added, including fun, play, rules, a goal, winning and competition; Klabbers (1999) included actors, rules and resources.

### **2.2.2 Types of simulation games**

A simulation game can be computer based or non-computer based. There are three types of computer based simulation games (gaming simulations, training simulations and modelling simulations) and two types of non-computer based simulation games: role play (interactive and non-interactive) and educational games (field, paper based and card games) (Lean, Moizer, Towler, & Abbey, 2006) (see Figure 1).

Training simulations are common in medical, safety, shipping and aeronautics disciplines (Lean et al., 2006), and modelling simulations, used to model particular issues and are used widely in teaching engineering (Lean et al., 2006), and other disciplines (for example, (Chwif, Barretto, & Paul, 2001; Jan & Jan, 2000)). Gaming simulations can be either single user applications where the participant plays against a computer model or multi-user whereby the participant plays against other users through a computer application (Lean et al., 2006;

Maier & Grobler, 2000). This research study involves participants playing in a gaming simulation in a multi-user computer application.



**Figure 1 Typology of simulations**

**Source: Lean et al. (2006, p. 229)**

### **2.2.3 Simulation games: Characteristics and considerations**

As noted in Chapter 1, the researcher found simulation games appeared to provide students with more engaging learning experiences than more traditional teaching (for example, lectures and tutorials) involving more real-to-life activities and providing opportunities for

students to apply marketing theory to something practical. They appear to provide students with authentic learning experiences.

If we contrast traditional classroom learning (for example, lectures and tutorials) with game learning environments such as simulation games, we may gain further insights into the latter's authentic nature. In classrooms, teachers teach theory and do their best to make it practical; it may be difficult to turn a text book into something meaningful for the students. In his description of schools and classroom learning, Gee (2007) points out that teachers teach the manual (the textbook) without allowing students to play the game that is turning the theory into something practical. The concept (theory) needs to have some situated meaning (Brown, Collins & Duguid, 1989). "Learning from dictionaries, like any method that tries to teach abstract concepts independently of authentic situations, overlooks the way understanding is developed through continued situated use" (Brown et al., 1989, p. 33). Using Gee's manual as an example of a tool a learner would use to play a game, Brown, Collins and Duguid (1989) make the point that such tools can only be fully understood through use. According to Gee (2007), video games, including computer simulations, allow participants to go beyond the manual. "After playing the game the manual is lucid and clear because every word in it now has meaning related to an action image, can be situated in different contexts of use for dialogue or action" (p.38). Referring to the literature around authentic learning characteristics, it appears that simulation games have the potential to provide authentic learning experiences. This section will present literature that identifies characteristics of simulation games; it will also present considerations designers and instructors need to be aware of to give simulation games the best opportunity of providing learners with authentic learning experiences.

Simulation games provide opportunities for learners to engage in authentic learning (Dickinson & Faria, 1997; Galarneau, 2005; Gee, 2007; Gredler, 2004; Ingram & Jackson, 2004; Starcic, 2008), allowing learners to participate in authentic activities situated in real-world contexts (Alessi & Trollip, 2001; Jonassen, 2000; Jonassen et al., 1997; Lunce, 2006). Simulation games provide learners with a variety of learning experiences (Fripp, 1993): these include deeper learning (Tan & Biswas, 2007), learning that takes place on many levels (Doyle & Brown 2000), experiences in multi-disciplinary learning across the curriculum (Betz, 1995), the ability to transfer learning and improve their performance in real-world



settings (Leemkuil, de Jong, de Hoog, & Christoph, 2003) and the opportunity of developing real-world skills (Doyle & Brown 2000) including logic and decision making (Aldrich, 2003; Goldstein, 2003).

Simulation games that are situated in real-world contexts can increase students' motivation to learn (Fripp, 1993; Hackleman & Wendel, 1979; Lunce, 2006; Tan & Biswas, 2007), by stimulating a higher level of interest and involvement (Fripp, 1993; Galarneau, 2005; Hackleman & Wendel, 1979). According to Galarneau (2005) these games encourage learners to participate actively, to explore and reflect on their learning and to develop their own construction of meaning. Such learning environments can provide learners with more control of their learning by providing them with the ability to manipulate simulation variables (Duffy & Cunningham, 1996; Hung & Chen, 2002), see the direct consequences of their actions (Corbeil, 1999; Doyle & Brown 2000; Fripp, 1993; Gibson & Baek, 2009; Hackleman & Wendel, 1979) and gain immediate feedback (Doyle & Brown 2000; Fripp, 1993; Hackleman & Wendel, 1979). These learning environments have the ability to increase learners' self-efficacy (Lieberman, 2006): for example, reducing anxiety and providing self-encouragement (Hogle, 1996; Oyen & Bebkko, 1996). According to Land and Hannafin (2000), learners are more likely to engage in meta-cognitive behaviour when engaged in situated learning activities such as simulation games. Simulation games can also provide the ability for learners to overcome real life constraints (Bratley, Fox, & Schrage, 1983), providing them with the opportunity to immerse themselves in a risk free environment (Alessi & Trollip, 2001) and overcome time (Alessi & Trollip, 2001; Bratley et al., 1983; Lieberman, 2006) and cost constraints (Bratley et al., 1983; Lieberman, 2006).

Characteristics of simulation games have been highlighted in the literature that provides learners with opportunities to immerse themselves in real-world authentic experiences and authentic learning. For simulation games to provide such opportunities other literature has stated the importance of appropriate instructional support and design elements. Literature recommends appropriate scaffolding (Duffy & Cunningham, 1996; Lunce, 2006), coaching (Duffy & Cunningham, 1996), feedback and debriefing (Leemkuil et al., 2003) and the opportunity for learners to reflect (Leemkuil et al., 2003). It is unclear, however, what these authors mean by appropriate. It has been identified in the literature that an appropriate pedagogical foundation needs to be provided to support learners in simulation games

(Aldrich, 2004), again, it is unclear what this might mean specifically. It also raises questions as to the design aspects of simulation games. Aldrich (2004) states there needs to be an appropriate balance between what he calls game elements and the functional simulation elements. Aldrich (2004) warns learners could be lost to a didactic learning experience and too many simulation elements could disengage learners as it may detract from the learning experience. Quinn (2005) describes the importance of engaging elements in simulation games to encourage learning; these elements include providing an appropriate theme, clear goals and challenges for participants; allowing participants to apply knowledge in a meaningful way; providing an interesting scenario; presenting participants with direct consequences of their actions; providing timely feedback and including an element of unpredictability. Quinn (2005) does not, however, believe that these design elements on their own lead to learning. Prensky (2001) also describes the importance of designing appropriate elements such as goals, rules and challenges to ensure the simulation is actually a game and encourages learning to happen; these elements need to be authentic and “need to be combined in an interesting, entertaining and addictive way, to make the player have fun and care” (Prensky, 2001, p. 8). Hung, Cheah Hu and Cheung (2004) also emphasised the importance of making the scenario, problem or case study in the simulation interesting for students to want to engage in and take ownership of it. Hill and Semler (2001) state the more authentic the simulation scenario the better the transfer of learning for participants.

It has been identified in the literature that poorly designed elements in simulation games can disengage participants and act as a barrier to learning (Agostinho, Meek, & Herrington, 2005; Bahr & Rohner, 2004; Hong, Lai, & Holton, 2003; Splitter, 2008; Windham, 2007). These elements include poorly designed scenarios (Agostinho et al., 2005; Splitter, 2008), complex learning material and unclear pathways (Windham, 2007), complex onscreen environments (Bahr & Rohner, 2004), and too much text without accompanied guidance (Hong et al., 2003). Other literature discusses how simulation games can be designed to reflect parts of real-world contexts while excluding some real-world aspects (Heinich, Molenda, Russell, & Smaldino, 1999; Lieberman, 2006); although this may be considered a positive aspect it may, however, detract from the authenticity of the learning experience. Learners according to the literature on authentic learning design should not be presented with a simplified version of content: the content should be presented as it naturally occurs (Grabinger, 1996; Herrington et al., 2010; Spiro, Vispoel, Schmitz, Samarapungavan, & Boeger, 1987). These design

elements identified in the literature are important considerations for designers and instructors planning to use simulation games and attempting to create a level of authenticity in their learning environments.

Although simulation games have the potential to provide opportunities for learners to immerse themselves in real-world authentic experiences and authentic learning, it is noted in the literature that the poor perceptions people have of simulation games could detract from the opportunities afforded to learners. There is a perception that simulation games, because they are games, lack educational merit and may not be good learning tools (Bennet, Wood, & Rogers, 1997; Chen, Chen, & Liu, 2010; Kumar & Lightner, 2007; Tan & Biswas, 2007; Voss & Brennan, 2010). Online simulation games constitute a learning environment that goes beyond the boundaries of the classroom (Galarneau & Zibit, 2007; James & Bloomer, 2001). The literature suggests this is something educators may not be fully equipped to manage (Galarneau & Zibit, 2007; James & Bloomer, 2001). This is something for instructors to consider when implementing these learning tools into their teaching.

### **2.3 Authentic learning design: the learning environment**

The simulation game learning environment has the potential to create authentic learning opportunities for learners as has been outlined in Section 2.2.3. It has also been recommended in the literature that appropriate support be provided to learners in these learning environments. If the learning environment is designed appropriately to create opportunities for authentic learning experiences it may not be sufficient, the literature suggests unless support is adequate. If the learning environment lacks appropriate design elements it may detract from the authentic learning experience even if appropriate support has been provided. These two elements, design and support, are mutually implicated. A framework for designing authentic learning environments will be discussed in this section. The literature relating to support mechanisms, that is scaffolding will be discussed in Section 2.5.

A framework for designing authentic learning environments has been built from literature on authentic learning design and will be described in this chapter. This framework identifies ten areas that need to be considered in the design of authentic learning environments.

1. authentic contexts
2. authentic tasks
3. provision of information in a timely manner
4. tools to solve tasks
5. opportunities to collaborate
6. social and contextual support
7. opportunities to reflect
8. opportunities to articulate
9. coaching and scaffolding
10. authentic assessments

**1. Authentic contexts:** The learning environment needs to provide learners with authentic contexts (Bennett, Harper, & Hedberg, 2002; Cunningham, Duffy, & Knuth, 1993; Herrington et al., 2010; Karagiorgi & Symeou, 2005; Squires, 1999). These contexts need to be all embracing (Herrington et al., 2010) and provide a sustained and complex learning setting (Herrington et al., 2010; Karagiorgi & Symeou, 2005). The problem presented to the learner needs to be ill-structured (Karagiorgi & Symeou, 2005) as well as interesting, relevant and engaging (Jonassen, Peck, & Wilson, 1998). Students should not be presented with a simplified version of the content, the content should be presented as it naturally occurs (Grabinger, 1996; Karagiorgi & Symeou, 2005; Spiro et al., 1987) situated in real-world contexts (Karagiorgi & Symeou, 2005) along with an alignment between the context in the formal setting and the real world (Bennett et al., 2002). Squires (1999) refers to this as contextual authenticity. Simplification of the content according to Karagiorgi and Symeou (2005), denies students the ability to develop associations between concepts and reflective

metacognitive processes. The notion of contextual authenticity (Squires, 1999) sits within situated learning theory, there is an inextricable link between knowledge and the way it will be used (Brown et al., 1989). The learning environment needs to provide sufficient resources to ensure contextual authenticity is maintained (Herrington & Oliver, 2000).

**2. Authentic tasks:** Herrington, Reeves and Oliver (2010) and Meyers, Noel and Nulty (2008) emphasise the importance of developing authentic tasks when designing authentic learning environments. The tasks need to have real-world relevance (Herrington et al., 2010; Meyers et al., 2008) and be ill-defined and complex (Herrington et al., 2010) whereby students have the opportunity to break these down into sub tasks in order to complete the activity (Herrington et al., 2010), just as professionals in their field would be doing (Dede, Korte, Nelson, Valdez, & Ward, 2005; Lombardi, 2007). These tasks need to ensure students use and engage in progressively higher-order cognitive processes and also provide them with the challenge, interest and motivation to learn (Meyers et al., 2008). The tasks need to be sufficient enough to allow students a sustained period to investigate and detect relevant versus irrelevant information. In developing these authentic tasks it is important that they don't provide just one experience but encourage and enable students to explore a number of perspectives on topics (Herrington et al., 2010). It is also important that they are integrated across subject areas (Herrington et al., 2010) and provide the learner with a set of related experiences (Jonassen et al., 1998) that are constructive and sequential (Meyers et al., 2008).

**3. Provision of information in a timely manner:** The learning environment also needs to provide learners with information in a timely manner to support the authenticity of the learning experience (Jonassen et al., 1998). What an appropriate time frame to disseminate information is not clear; if we reflect on situated learning theory (for example Brown, 1989) it may be what a professional in that field may deem information necessary given the particular situation.

**4. Tools to solve tasks:** The learning environment design also needs to provide learners with tools to solve the authentic tasks they are presented with (Jonassen et al., 1998): a computer simulation game is an example of a learning environment that has the capacity to provide such tools (Jonassen et al., 1998).

**5. Opportunities to collaborate:** Herrington, Reeves and Oliver (2010) stated the learning environment needs to provide students with opportunities to collaborate, explaining that tasks

need to be conducted in groups and appropriate communication platforms are required. It is unclear from the literature what appropriate may mean. Simply putting students together is not sufficient and will not encourage collaboration (Herrington et al., 2010). De Byl (2009) states that a learning environment should encourage participants to police one another to ensure collaboration continues. Jonassen (1998) explained learners need to be provided with tools to support collaboration in the learning environment: for example, appropriate communication platforms. The collaborative setting should reflect collaboration between both teachers and students and students and students (Cunningham et al., 1993) and should support the collaborative construction of knowledge required for authentic learning (Herrington et al., 2010).

**6. Social and contextual support:** The learning environment design also needs to provide the learner with social and contextual support (Jonassen et al., 1998). Social support may be required to support learners' motivation, and contextual support to assist learners reach their goals (Jonassen et al., 1998). Providing learners with access to experts to guide them in set tasks is one type of contextual support the literature states should be provided in the learning environment (Herrington et al., 2010; Hung et al., 2004). The expert could be learners that have different levels of expertise (Herrington et al., 2010) or experts in a particular field or domain akin to apprenticeship models (Brown et al., 1989). In a simulation game the expert could be either students that have themselves just grasped important knowledge and skills or the instructor (Herrington et al., 2010).

**7. Opportunities to reflect:** A learning environment encouraging authentic learning needs to provide the opportunity for learners to reflect on their experiences (Herrington et al., 2010; Hung et al., 2004). Reflection refers to "those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understandings and appreciations" (Boud, Keogh, & Walker, 1985, p. 19). Reflection is a social process (Boud et al., 1985; Kemmis, 1985) and consequently should not be performed individually but in a collaborative manner (von Wright, 1992). According to Boud, Keogh and Walker (1985), there are three related stages in the reflection process: a) returning to the experience when participants can recount to others salient features of the experience, attending to feelings; b) revisiting positive and negative feelings from the experience and re-evaluating the experience; c) new knowledge deriving from reflecting on the experience. In an authentic learning environment reflection should not come from artificial prompts: for example,

prompts built into a computer game reminding you to reflect or prompts from the teacher; they should occur naturally within the learning environment (Candy, Harri-Augstein, & Thomas, 1985; Herrington et al., 2010; Kemmis, 1985).

Herrington, Reeves and Oliver (2010) recommended design features to facilitate reflection. There needs to be an authentic context and task that require decisions to be made. Materials and resources need to be organised in a nonlinear way to enable students to return to any element of the activity if required. Learners need to be provided with the opportunity to compare themselves with experts and with other learners in varying stages of accomplishment and the learning environment needs to provide collaborative groupings of students to enable them to reflect.

**8. Opportunities to articulate:** The learning environment according to Herrington, Reeves and Oliver (2010) needs to not only provide a vehicle to reflect but also an opportunity for learners to be able to articulate. Articulation, Herrington, Reeves and Oliver (2010) state, needs to take place in speech, the importance of this is supported in the literature identifying speech as an influence on the learning process (Edelson, Pea, & Gomez, 1996; Lave & Wenger, 1991; Lee, 1985).

**9. Coaching and scaffolding:** Another important principle in the design of authentic learning environments is the need to provide the opportunity for the teacher and more able participants to be able to assist with coaching and scaffolding (Herrington et al., 2010). Coaching is best performed by the teacher according to Collins, Brown and Newman (1989) as it is situation-specific and relates to difficulties students have in applying their skills and knowledge to a particular situation. Scaffolding, according to Greenfield (1984), comprises five salient characteristics: it provides a support, functions as a tool, extends the range of the participant, allows the participant to accomplish a task not otherwise possible and is used selectively to aid where needed. A collaborative learning feature is recommended in the learning environment design in order to provide coaching and scaffolding (Herrington et al., 2010). Herrington, Reeves and Oliver (2010) recommend coaching and scaffolding should be available to learners for a “significant portion” (p. 36) of the learning activity. What significant specifically means is not clearly articulated in this literature.

**10. Authentic assessments:** In an authentic learning environment the assessment tasks need to be authentic (Grabinger, 1996; Herrington et al., 2010; Newmaster & Lacroix, 2006;

Wiggins, 1989): for example, giving students a test based on a simulation game is not an authentic assessment and does not reflect the authentic environment it is assessing. An assessment is likely to be authentic if it is seamlessly integrated with the authentic environment (Herrington et al., 2010; Reeves & Okey, 1996; Young, 1993, 1995); is more realistic, practical and challenging (than traditional tests) (Newmann & Wehlage, 1993; Torrance, 1995) and of a holistic nature (Grabinger, 1996); involves connectedness and transfer to the world extended beyond the classroom (Bloomfield et al., 2013; Darling-Hammond & Snyder, 2000; Mueller, 2005; Newmann & Archbald, 1992; Newmann & Wehlage, 1993); applying realistic tasks in a realistic context (Gulikers, Bastiaens, & Kirschner, 2004; Whitelock & Cross, 2011); teaching, learning and assessment continuously intertwined (Puckett & Black, 2000); requires students to spend significant time and effort collaborating with others (Linn, Baker, & Dunbar, 1991; Reeves, 2000); involves substantive conversation (Newmann & Wehlage, 1993); involves high order thinking and problem solving (Newmann & Wehlage, 1993; Reeves, 2000); involves the production of knowledge rather than reproduction (Newmann & Archbald, 1992); involves complex, ill-structured challenges (Linn et al., 1991; Torrance, 1995; Wiggins, 1990, 1993; Winn, 1993), involves multiple forms of evidence to measure student performance (Reeves, 2006); involves complex, ill-structured challenges requiring judgment (Linn et al., 1991; Reeves, 2000; Torrance, 1995; Wiggins, 1990, 1993); and a wide range of active responses are stimulated (Reeves, 2000).

## **2.4 Motivation**

This section will review literature that looks at influences on motivation and the influence motivation has on student authentic learning. Herrington, Reeves and Oliver (2010) note that the origins and strengths of a participant's motivation can encourage or inhibit learning in an authentic learning environment such as a simulation game. An authentic learning environment, if designed well, is expected to stimulate a participant's intrinsic motivation (Gulikers, Bastiaens, & Martens, 2005). Research undertaken by Herrington, Reeves and Oliver (2010) suggests however learners vary in their capacity for intrinsic motivation. So although the authentic learning environment may be designed well, individual motivational differences may counter the potential authentic learning experiences. Authentic learning design and its impact on motivation will be explored in the latter part of this chapter. It is



important first to draw upon literature that relates to individual differences and motivation and how this may impact on authentic learning.

Ryan and Deci's (2000) taxonomy of human motivation model describes three styles of human motivation. The model is relevant to this research study as it provides some insight into individual motivational differences and this is important in understanding why some students may be more engaged than others in authentic learning environments. In this model an individual can move from one regulatory style of motivation to another through an orientation shift, inciting intrinsic motives or more autonomous extrinsic motives (Ryan & Deci, 2000). The shift may be influenced by a 'carrot or stick' approach, a reward (for example, in the context of a simulation game, providing the participant with a favourable performance result) or an external demand (for example, a team member or facilitator in the simulation game environment telling players to lift their game). In the context of a simulation game environment there is, according to this model, an opportunity for teachers, facilitators and team members to shift an individual's motivation style from extrinsic to intrinsic motivation. There is also the possibility, according to this model, of the motivational shift moving the other way if the external demand and/or reward is not maintained throughout the learning journey. So the model provides an insight into understanding how an individual's style of motivation may influence their participation in the authentic learning environment and their authentic learning experience. The model also shows the potential one has to change an individual's motivational style and the opportunity to influence this individual's authentic learning experience.

Another model that is significant in understanding a learner's motivation and how this can influence authentic learning is Garris, Ahlers and Driskell's (2002) input-process-outcome instructional game model. This model outlines three motivators that drive participants in simulation games: user behaviour (effort expended, decision to continue to play), system feedback (information about one's performance) and user judgments (enjoyment, task involvement and self-efficacy). In this model there is a game cycle in which user judgments influence user behaviour that influences system feedback which influences user judgments. (Martens, Gulikers, & Bastiaens, 2004). This model provides an insight into how some students may shift their style of motivation based on one's performance in a simulation game. Performance may inspire an individual to move ahead or throw in the towel. The former,

Washbush and Gosen (2001) believe will encourage positive learning and the latter may create negative learning (Washbush & Gosen, 1998). If team members believe that they collectively have something to gain, intellectually or emotionally in a simulation game, team effort should be stronger and positive learning should result (Washburn & Gosen, 2001).

The literature also reports that some individuals may be driven to succeed even if the feedback received from a simulation game is not favourable. When an individual receives feedback from a computer simulation game that indicates current performance does not meet goals they may try to reduce this discrepancy. If the individual is committed to achieving this goal this discrepancy will lead to increased effort (Hofstede, de Caluwe, & Peters, 2010; Iyengar & Lepper, 2000) or an attempt by the participant to try a new strategy (Locke & Latham, 2002).

So far in this chapter it has been suggested that individuals have their own motivational styles that may be able to be shifted with the appropriate incentive and/or external demand to encourage authentic learning. A specific incentive identified in the literature is that of providing participants in a learning environment with ownership or control. Providing the learner with more control can encourage motivation. If the learner has more control in relation to the learning environment including their learning goals, the method of learning, the performance outcomes, the physical and social environment and ownership in decisions, this is more likely to lead to increased motivation and greater learning (Baxter, 1989; Dempsey, Haynes, Lucassen, & Casey, 2002; Prosser, 1984). Iyengar and Lepper (2000) found that it is also possible to give too much choice or control, leading to negative motivational effects. On the other hand, if students are unable to control critical dimensions of their learning this will detract from intrinsic motivation (Severiens & Ten Dam, 1994). This literature suggests an appropriate balance needs to be met to ensure control and ownership remains an incentive for motivation and not the opposite.

### **Individual differences and motivation**

As Ryan and Deci (2000) note, not all students go into a learning environment with the same level of motivation. This section looks at differences in age, gender and self-esteem that influence student motivation and their authentic learning experiences.

Some studies suggest more mature age students take on a deeper approach to learning (Richardson, 1995; Sadler-Smith, 1996) and a greater tendency towards reflection and observation (Truluck & Courtenay, 1999). Other studies have found younger students were more likely to tolerate ambiguity than older students and more likely to see themselves involved in groups (Gosenpud, 1982).

Research studies relating to the impact of gender on learning styles have found males have a greater preference for abstract concepts than females whilst females prefer concrete learning styles (Baxter, 1989; Kolb, 1984; Prosser, 1984; Severiens & Ten Dam, 1994). Similar findings were found in research conducted by Heffler (2001), that led him to suggest that females preferred ‘a more experience based approach to learning, feeling-based judgments, people-oriented, concrete role-play simulation learning’ (p. 314). Specifically relating to simulation games, Dempsey, Haynes, Lucassen and Casey (2002) found females were three times more likely to state they were not confident about succeeding in a simulation compared to males. Garber and Clopton (2004) identified males had high levels of confidence and were focused on competitive and performance aspects compared to their female participants. Garber and Clopton (2004) also found that females were more analytical whereas males were more intuitive when playing the simulation game. Other research has found females perceive simulation games to be less valuable and engaging for learning compared to males (Anderson & Coffey, 2004), and that females had a lower tolerance for ambiguity (Garber & Clopton, 2004).

Self-esteem can influence a participant’s motivation in an authentic learning environment. Self-esteem relates to a person’s feelings of adequacy and competence (Komarraju & Karau, 2008). If students aren’t sufficiently prepared to start the game, whether from low feelings of adequacy and competence, instructor support is necessary to influence an individual’s motivational style (Yakonich, Cannon, & Ternan, 1997); this can be done by encouraging and nurturing “providing keys that help the student break through the emotional paralysis often caused by the belief that one is simply unable to succeed” (Yakonich et al., 1997 p. 32). In contrast, if a student has high self-esteem and believes he/she can perform well in the simulation team, his/her subjective probability to succeed is high (Yakonich et al., 1997). Moreover if a student feels he/she has little control within the simulation team and also has low self-esteem this will decrease the subjective probability to succeed (Yakonich et al.,

1997). Low self-esteem students through their insecurities may also feel the game might be easier for others than for them (Yakonich et al., 1997).

### **Authentic learning environments and motivation**

The literature suggests that authentic learning environments are potential motivating tools (Herrington & Oliver, 2000; Newmann & Wehlage, 1993); where they provide the ingredients that motivate adults to learn providing a problem solving orientation to learning and present learning in a real life context (Huang, 2002), such environments are a powerful tool in engaging and motivating students (Jones, Casper, Dermoudy, Osborn, & Yates, 2010 ). Gulikers, Bastiaens and Martens (2005) warn, however, that just because the learning environment has been designed by educational developers as authentic does not mean that students will see it that way. This is supported by Honebein, Duffy and Fishman (2001) who argue that students have to perceive the learning environment as authentic for motivational benefits to arise; if this occurs Anderson and Coffey (2004) state that students will identify with the learning material and find learning to be more interesting and meaningful. Garris, Ahlers and Driskell (2002) assert that game contexts that are meaningful and provide hierarchical goal structures are likely to enhance a participant's motivation and performance. In sum authentic learning environments have the potential to motivate learners; however, as noted in the literature, if students do not perceive the learning environment to be authentic this will affect their learning. This is an important consideration, and relevant to this research study as it will investigate the perceptions of students involved in a simulation game and the extent to which they perceive the learning environment as authentic.

## **2.5 Collaboration**

Collaboration is an important ingredient to create an environment that provides authentic learning opportunities (Gee, 2007; Herrington et al., 2010). It is a process that facilitates learning providing opportunities for practitioners of differentiated abilities to discuss, debate, observe and share practices (Greer, 2012). Thomson's (2001) definition of collaboration goes further and includes the joint creation by participants of rules and structures.

Collaboration is a process in which autonomous actors interact through formal and informal negotiation, jointly creating rules and structures governing their relationships and ways to act or decide on the issues that brought them together; it is a process involving shared norms and mutually beneficial interactions (Thomson, 2001 p. 23).

Having a well-designed authentic learning environment that includes a collaborative feature for participants to engage in is important for authentic learning (Gee, 2007; Herrington et al., 2010). Other literature has identified collaboration and collaborative features as necessary components of authentic learning; providing opportunities to engage in discourse and social learning (Cronin, 1993; Donovan, Bransford, & Pellegrino, 1999; Newmann, 1996; Rule, 2006); learn with others (Kruger et al., 2001) and in groups (Herrington et al., 2010; Kruger et al., 2001); "...opportunities for complex collaborative activities" (Herrington et al., 2010 p. 1); provide appropriate communication platforms (Herrington et al., 2010); learning embedded in social practice (Schultz & Kim, 2012); and opportunities to interact with peers and experts (McNeil, 2003).

Simply supporting participants' interactions in a learning environment will not automatically guarantee collaboration (Murphy, 2004). According to Murphy (2004), for participants to experience collaboration they need to move along a continuum through six stages: namely, social presence, articulating individuals perspectives, accommodating or reflecting the perspectives of others, co-constructing shared perspectives and meanings, building shared goals and purposes and producing shared artefacts. Murphy (2004) further suggests that scaffolding can guide participants along this continuum, an aspect outlined in Section 2.6. Moving along the lower stages of the continuum does not guarantee participants will reach the higher levels, however, when a sense of community is formed interaction can move to a higher level and become collaboration (Murphy, 2004).

Where online collaboration is concerned, Hughes, Wickersham, Ryan-Jones and Smith (2002) identify four factors that influence its effectiveness: participants' perceived value of collaboration (and (Angehm, 2006)), participants' comfort in and trust with, the environment, participants' trust in their fellow collaborators and the facilitator and participants' perceived richness of, and engagement with, the social experience. Trust is a key component of collaboration (Bardach, 1998; Huxham & Vangen, 2005); Thomson and Perry (2006) identified the importance of establishing trust and reciprocity to create a collaborative environment; that is, individuals will often demonstrate a willingness to collaborate only if others demonstrate the same willingness.

The extent to which collaboration is created and supported has significance in this research, in influencing Marketing students' authentic learning opportunities participating in the simulation game.

### **Setting up ground rules for collaboration**

According to Thomson and Perry (2006), those seeking to collaborate need to establish rules that will govern their behaviour and relationships and develop structures on how agreements are to be made, all within shared power arrangements. Clear roles and responsibilities need to be established, boundaries need to be set, concrete achievable goals need to exist and communication needs to be good to encourage collaboration (Thomson, 2001). Key administrative functions need to be coordinated and monitoring mechanisms need to be established in the collaborative process (Bardach, 1998; Mattessich & Monsey, 1992; Ring & Ven, 1994).

### **Activities to support collaboration**

According to Gutwin and Greenberg (2000), there are four activities needed to support collaboration: monitoring and gathering information, protecting the collaborative process, providing explicit communication and assistance. Gutwin and Greenberg (2000) emphasise the importance of monitoring and gathering information about others in your workspace to support collaboration. They also state that one needs to keep an eye on what effect others' actions could have on one's own work, and take action where necessary to prevent anything negative impacting on the collaborative process by protecting their collaborative environment. Explicit communication is an important activity in the collaboration process, group members intentionally providing one another with information both in verbal and written form (Gutwin & Greenberg, 2000). Thomson and Perry (2006) describe the importance of establishing mutual benefits to enable a collaborative environment, if team members share information without mutual benefits collaboration, they say, this will not occur. According to Gutwin and Greenberg (2000) part of the collaboration process is ensuring group members help one another when it is needed. The request for assistance may be opportunistic and informal or be sought out in more formal settings and communications. It is important that all members have an understanding of the roles and responsibilities of others and how they are progressing with their tasks to support the collaborative process (Gutwin & Greenberg, 2000).

## **Collaboration and simulation games**

Gee (2007) describes the collaborative nature of computer games, including simulation games. Participants develop communities while playing; these communities take place in spaces he refers to as 'affinity spaces'. The space can be real (for example, physically meeting in a room) or virtual (including interacting on a website or video conferencing) (Gee, 2007). The only problem, according to Gee (2004), about affinity spaces is that they are not encouraged in schools and operate predominantly outside class. Gee (2004) suggests that if teachers/instructors can include authentic activities such as simulation games in their classes and provide appropriate scaffolding, these spaces can potentially operate in class. It is the collaborative nature of game playing and its impact on learning that is of interest here. Gee (2007) makes the point that affinity spaces encourage learning and the sharing and supporting of others within the community.

The features of affinity spaces share common ground with Vygotsky's zone of proximal development. Vygotsky (1978) describes the zone of proximal development as "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86); that is, peer collaboration or adult guidance helps a student perform a particular task that they could not have done alone. According to Vygotsky (1978), it is dialogue with others that the learner constructs their understanding. This goes beyond just providing learning material and lectures to learners. In games, including simulation games, peer collaboration could take participants to the level of potential development.

Papastergiou (2008) also suggests that simulation games have the potential to encourage collaborative learning. "Educational online games having (particular) design features can offer students fruitful constructivist and collaborative learning experiences grounded in real world practices that are encountered in the students' respective academic disciplines" (p. 34). It is the design features that are particularly important here.

Herrington, Reeves and Oliver (2010) assert that collaboration can be encouraged by including appropriate tasks and communication technology. These tasks need to be completed in groups and appropriate incentives need to be put in place (Herrington et al., 2010). For collaboration to be effective it is the design of particular features and appropriate

instructor scaffolding factors that need to be included in the learning environment (Herrington et al., 2010; Newmaster, Lacroix, & Roosenboom, 2006). The question of what appropriate scaffolding may mean will be discussed in Section 2.6. Having a well-designed authentic learning environment that includes a collaborative feature is important in encouraging authentic learning so long as collaboration is necessary to accomplish the task. If collaboration is not necessary and is imposed upon students artificially it may have an adverse effect on the learning process (Baloian, Buschmann, Breuer, & Matsumoto, 2006).

## **2.6 Scaffolding**

Herrington, Reeves and Oliver (2010) define scaffolding as follows.

[Scaffolding is] the role of the instructor in providing sufficient directions to get learners started on the right path when confronted with a complex authentic task, reining learners in when they stray too far from a feasible path to task completion, pointing students to useful resources, nurturing clear communication and fruitful collaboration, and in general providing learners with just enough support so that they accomplish the tasks primarily through their own efforts. (p. 69)

Literature has identified the importance of scaffolding to provide learners with an opportunity to experience authentic learning. Scaffolding is seen as important to nurture and support collaboration, an important ingredient for authentic learning (Herrington et al., 2010).

Scaffolding has also been identified in the literature as a factor that can influence motivation in learners (Ryan & Deci, 2000), another important ingredient for authentic learning (Herrington et al., 2010). Lombardi (2007) stated an engaging activity supported by proper scaffolding can help students develop expertise across all learning domains: cognitive capacity (think, solve problems, create); affective capacity (to value, appreciate, care); psychomotor capacity (to move, perceive, apply physical skills) and conative capacity (to act, decide and commit).

Scaffolding can enable students to learn in authentic learning environments such as simulation games so long as the balance is right, too much support may interfere with the authentic task, too little support could result in the learner not completing the task (Herrington et al., 2010). The literature suggests an appropriate balance needs to be reached (Herrington et al., 2010; Jonassen, Howland, Moore, & Marra, 2003; Tan & Biswas, 2007;



Tonks, 2002). Herrington et al (2010) state appropriate scaffolding is required for a significant portion of time to encourage authentic learning.

Literature has been identified that provides a guide in relation to how more scaffolding is required for less able learners in simulation game learning environments. Clark (1989) says that these learners do not have task-specific learning strategies and need instruction and structure; failure to provide strong learning support for less experienced or less able students could actually produce a measurable loss of learning. Yakonich, Cannon and Ternan (1997) add further to the discussion about less able learners and scaffolding, stating instructional support is necessary if students aren't sufficiently prepared to start the game. These learners may have a low self-esteem that is a low feeling of adequacy and competence. An instructor can influence an individual's motivational style by encouraging and nurturing them "providing the keys that help the student break through the emotional paralysis often caused by the belief that one is simply unable to succeed" (Yakonich et al., 1997, p. 32). The instructor can also coach students who are lost or discouraged and manage the simulation so that it is not too difficult or easy nor becomes too predictable by adding special problems or events to the learning environment. (Yakonich et al., 1997). These Yakonich, Cannon and Ternan (1997) suggest will help enhance learner motivation in some and maintain it in others. Tan and Biswas (2007) also agree that structure is required for the novice learner, "the environment must promote, support and scaffold this type of learning" (p.74).

As mentioned in Section 2.5 the literature identified the importance of scaffolding to guide participation in the collaborative environment (Murphy, 2004), an important ingredient for authentic learning (Herrington et al., 2010). Hiltz (1997) identified the importance of providing scaffolding to support a collaborative feature in the learning environment, without support Hiltz (1997) states students will disengage or not engage in collaboration at all. Murphy (2004) suggests scaffolding can guide participants along what she calls a six stage continuum needed to experience collaboration (see Section 2.5). Gee (2007) made reference to affinity spaces, he suggests with appropriate scaffolding these affinity spaces could be encouraged in and outside the classroom, a feature that could enhance a learner's authentic learning experience.

Scaffolding has been identified in the literature as necessary to encourage motivation (Ryan & Deci, 2000) another important ingredient for authentic learning (Herrington et al., 2010).

In section 2.4 Ryan and Deci's (2000) taxonomy of human motivation model identified a range of individual motivational styles and the potential for individuals to move along what was described as a continuum. Scaffolding (including improving demands and/or rewards) could move students along this continuum from low extrinsic motivation potentially to intrinsic motivation (Ryan & Deci, 2000). Another way to increase learner motivation is to provide students with control in relation to their learning including learning goals, method of learning, performance outcomes and ownership of decisions (Baxter, 1989; Dempsey et al., 2002; Prosser, 1984). Iyengar and Lepper (2000) warn however that it is possible to give too much choice or control leading to negative motivational effects. If students are unable to control critical dimensions of their learning this will detract from intrinsic motivation (Severiens & Ten Dam, 1994).

## **2.7 Summary**

This chapter has defined authentic learning and identified a number of requirements for, and aspects of, learning environments that contribute to authentic learning in simulation games. The literature has identified the importance of including appropriate design elements to provide students with authentic learning opportunities. Ten areas have been identified in the literature that need to be considered in designing authentic learning environments.

This chapter also drew on literature that looked at the influences on motivation and the influences motivation had on student authentic learning. Providing an insight into student motivation styles, and how performance, feedback and student ownership and control in the learning environment may influence motivation. The literature also identified collaboration as an influence on student authentic learning opportunities and provided a guide to how to establish, cultivate, nurture and maintain a collaborative environment necessary to encourage authentic learning opportunities.

Finally the literature described the importance of scaffolding in providing students with authentic learning opportunities. Scaffolding was identified as a factor that can influence motivation in learners and guide participation in the collaborative environment; both necessary the literature states for authentic learning.

This research study investigated two research questions: How does a marketing simulation game support or inhibit TAFE marketing students' authentic learning? What factors influence student authentic learning while participating in a marketing simulation game? There has

been a substantial amount of research in the use of simulation games in marketing education, however, there has been little research conducted on the students' experiences, including student perceptions of simulation games and learning (Brennan, Willetts, & Vos, 2008), which is the focus of this research study. The literature identified and discussed in this chapter will be drawn upon to contribute to the limited research conducted in this area and to assist in answering the research questions in this study.

## Chapter 3. Methodology

There are two methodological approaches to research in social science: positivism and post-positivism (Noor, 2008). Positivism emphasises the model of natural science, the researcher objectively collects facts about the social world and arranges these facts in a chain of causality building upon an explanation of social life (Finch, 1986). Post-positivism is concerned with the different constructions and meanings people place on their experience (Easterby-Smith, Thorpe, & Lowe, 1991). Positivism is more closely associated with quantitative research and post-positivism more aligned to qualitative research, dealing with understanding the subjectivity of social phenomena (Noor, 2008). Within these two approaches there are three major research paradigms: 1. qualitative dominant whereby the research continuum can range from pure qualitative research to a mix of qualitative and some quantitative research; 2. equal dominant, an equal distribution of qualitative and quantitative research; and 3. quantitative dominant, ranging from pure quantitative research to a mix of quantitative and qualitative research (Johnson, Onwuegbuzie, & Turner, 2007). As this research study was investigating student experiences and perceptions in a marketing simulation game learning environment, the research paradigm was thus qualitative dominant: the majority of the research tools were qualitative to help understand the different constructions and meanings students place on their experience within the simulation learning environment, there were some quantitative tools used to collect data about students' participation in the simulation game. As Black (1994) and Shah and Corley (2006) point out in their descriptions of qualitative research methods they take on a holistic perspective that preserves the complexities of human behaviour and are most revealing when the variables of greatest concern are unclear (Black, 1994); this lack of clarity allows the researcher to discover new variables and relationships, reveal and assist our understanding of complex processes and provide insights into the influence of the social context (Shah & Corley, 2006).

This research study is a case study. A case study is an empirical enquiry that investigates a phenomenon in its context using multiple sources of evidence (Brennan, Willetts, & Voss, 2008; Yin, 1981); it goes beyond the range of sources of evidence available in an historical study (Malik & Howard, 1996); it is an in-depth study of a single unit (a phenomenon) where the researcher's aim is to reveal features of a larger class of similar phenomena (Gerring, 2004); it allows the researcher to retain the holistic and meaningful characteristics of real-life

events (Yin, 2003). It enables the study of many different aspects and the examination of these in relation to each other (Gummesson, 1988). A case study research approach is relevant to this research study, it is an ideal methodology when an in-depth, holistic investigation is needed (Feagin, Orum, & Sjoberg, 1991). This research study will investigate two research questions: How does a marketing simulation game support or inhibit TAFE marketing students' authentic learning? What factors influence student authentic learning while participating in a marketing simulation game? This research is concerned with the student experience and perceptions of TAFE Marketing students playing a marketing simulation game, and the impact the game has on their learning. This methodology will help understand the different constructions and meanings students place on their experiences within a simulation learning environment.

### **3.1 The Simulation Learning Environment**

#### **The simulation game**

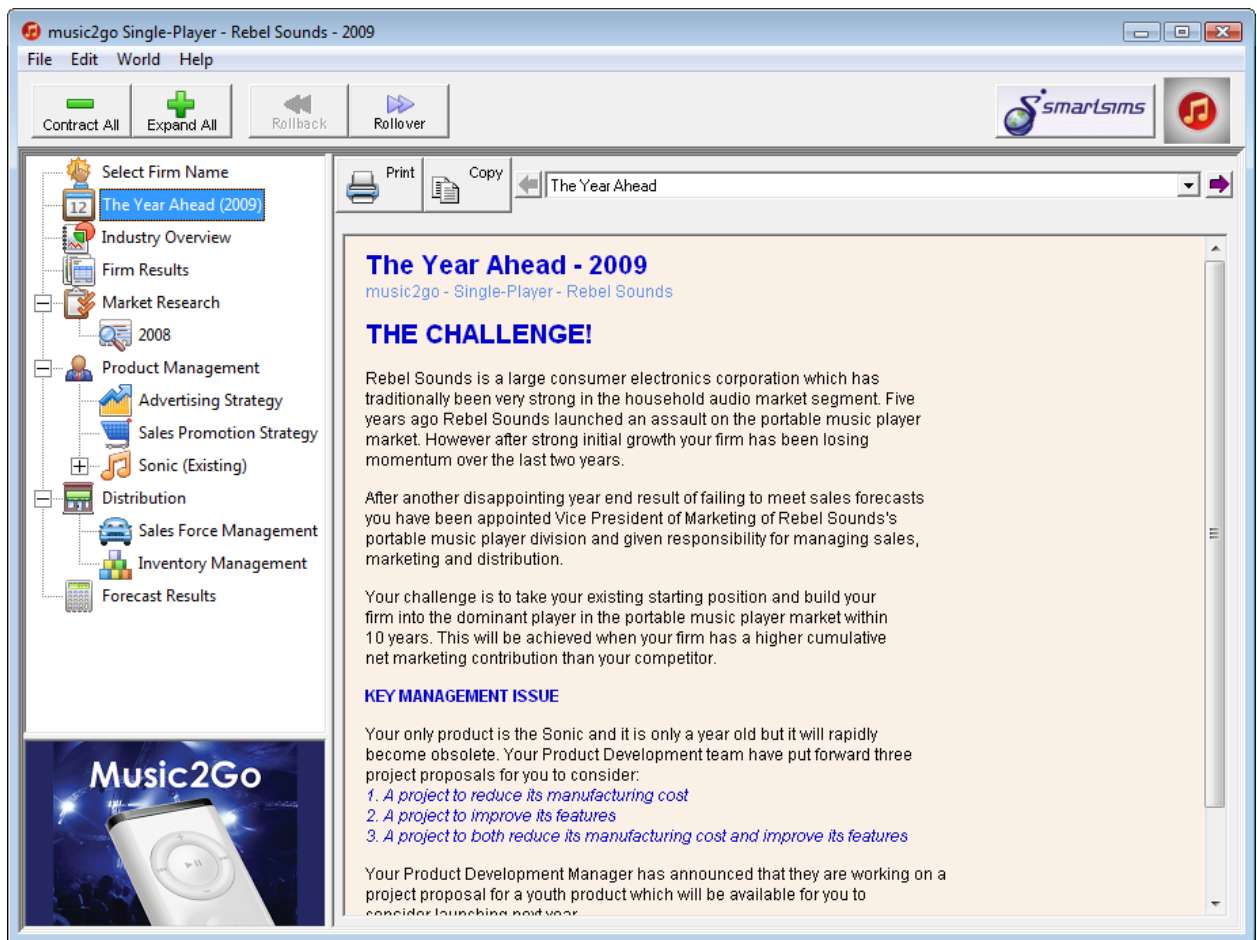
The researcher searched extensively for an appropriate marketing simulation game that would allow students to apply the marketing theory that they had learned to a real-to-life situation. There are a limited number of these games available in the public domain. A number of marketing simulation games require students to make broad company decisions which includes marketing decision making. The game chosen for this student cohort and consequently used in this research study was more marketing focused.

The chosen simulation game aligned with six out of the ten authentic learning design considerations outlined in Section 2.3. The game did not provide opportunities for students to collaborate, there was no provision for social and contextual support, and there were no opportunities for articulation, coaching and scaffolding. The learning environment was adapted by the facilitator to make up for the game's shortcomings in these areas. Throughout the semester students participated in this marketing simulation game. Teams were required to make marketing decisions over ten simulated periods, each period equating to a simulated year, from 2009 to 2018. The simulation was played online; students were given the option to play in a team or on their own; three students decided to play on their own, the remaining students put themselves into teams. There were six competing teams; three teams comprising four team members and three teams with individual members.

### **The simulation game environment**

Students were allocated user names and passwords to gain entry into the simulation game. Once the students were logged on they were given access to their team's reports and the 'keys' to make marketing decisions. The students were given two practice runs (one per class over two weeks) prior to the commencement of the 'real' game.

Students were introduced to the scenario in the first simulation year. Once logged students were presented with a menu displaying the following sections: Select firm name (students went into this once only to record their firm's name); The Year Ahead; Industry Overview; Market Research Reports; Firm Results; Product Management and subheadings (Product design, Price, Advertising; Distribution and subheadings (Sales Force Management, Inventory Management); Forecast Results. Appendix 2 provides a description of each section. The first screen (see Figure 2) informed students they had been appointed Vice President of Marketing of the portable music player division of a large Consumer Electronics Corporation; they had been given responsibility for managing sales, marketing and distribution strategies.



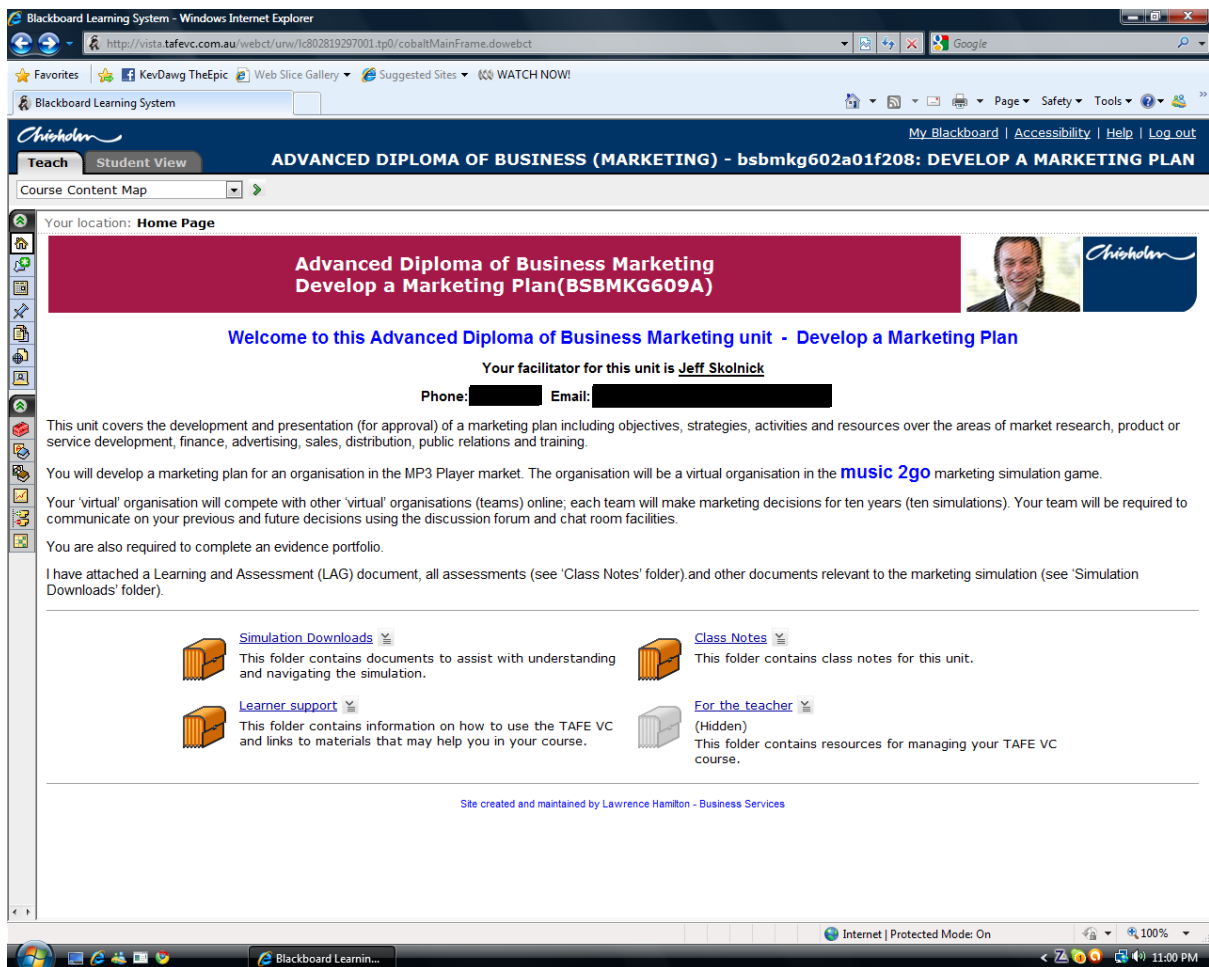
Reproduced with permission from Smartsims International Limited

**Figure 2 The Year Ahead**

Students were required to log on at least once a week to review their team's performance, and make team decisions for the new simulation year.

### **Technical and Further Education (TAFE) Virtual Campus (VC)**

A site specifically relating to the two Marketing units and the simulation exercise was created on the TAFE Virtual campus online website by the facilitator (see Figure 3). All marketing simulation game resources including PowerPoint slides, the simulation player's manual, the assessments, the email template and other resources were available on this online website for students to access throughout the 16 week semester.



**Figure 3 Screen Shot: The TAFE Virtual Campus Online Website Home Page**

## **Classroom organisation**

Classes took place in a computer room and delivered once a week for three and a half hours. Students were allocated time in class to run team meetings, participate in email forums and make team decisions. Students were encouraged to complete as much as they could in this time however were given until 11:59 pm on the day of the class to finalise their team's decisions and complete all email correspondence.

## **Email forums**

In preparation for each simulation period, students were required to email one another to review their previous team results and determine their marketing approach for the new year. The facilitator added this task into the game. Team members were required to organise themselves so that a different person led the discussion each week; once that person had sent



their response to the team they needed to wait for their other team members to send their responses. The facilitator was copied into all of these emails and this data was part of the qualitative data he gathered. The facilitator was a passive observer and did not provide any input to the teams or individual team members.

In the introductory class, an email example outlining the required format and content (see Appendix 3) was distributed by the facilitator to all students in hard copy and also made available on the TAFE Virtual Campus. Marketing templates were also attached to this document to prompt students' thinking; these included sections of a Marketing Plan and corresponded to the decision areas required in the simulation game (see Appendix 4).

### **Supporting documents**

The commercial simulation game Music2Go came as a package; the facilitator and students had access to the game itself and supporting documents, PowerPoint slides and a player's manual. The game also came with a selection of assessment tasks the facilitator could use that complemented the game. The PowerPoint slides introduced the mp3 market and demonstrated how to input decisions. Students were encouraged to read the player's manual prior to commencing the simulation game.

To assist in the planning and preparation of marketing strategies for each simulation year, the facilitator developed a set of templates for the students to refer to and use. The template provided a checklist of marketing principles that aligned with decisions that needed to be made in the simulation game and that were to be presented in their weekly emails. The content included marketing objectives, marketing tactics, marketing strategies, and control factors (see Appendix 4).

### **Instructor and game support**

If students had any concerns or questions outside of class time they were encouraged to email their teacher. He was available to assist students with the simulation exercise during class time. Students also had access to the game's online help desk if further support was required.

## **Assessments and the simulation game exercise**

There were two assessments that related directly to the simulation exercise.

1. Students were graded on the quality of their email responses; each student was required to submit one email per week for nine of the ten simulation weeks to their team members and teacher.
2. Students were graded on their team results. At the end of the ten simulation periods teams were graded according to their final performance. Two key performance areas were Cumulative Net Marketing Contribution Margin (Sales Revenue less costs including Marketing Costs) and Market Share in 2018.

### **3.2 Data collection instruments**

Qualitative data was collected from the researcher's observation of discussions in asynchronous email forums, two focus groups and results from student questionnaires. Quantitative data was collected from the researcher's observations of discussion forum participation (email forums), classroom face-to-face discussions, and students' game performance.

#### **3.2.1 Discussion forums**

Students were required to discuss their team's simulation game performance and future strategies in email discussion forums and class-room discussions forum. An email discussion forum involved students interacting with their team members by way of asynchronous emails; class-room discussion forums involved students meeting face-to-face in the TAFE classroom. Email and class-room discussion forums occupied a nine-week period. The researcher observed the number of times students participated in the email forums as well as what was said. The researcher also observed student participation in the class-room forums but did not, however, collect data in relation to the content of these discussions.

The researcher originally wanted to establish an electronic discussion forum in the Technical and Further Education (TAFE) Virtual campus online website. However the website gave students access to all online discussions including their competitors. An email discussion forum was introduced instead so to provide students with a 'private' forum in which to access their team's discussions and recommended strategies without other teams looking on.

### **3.2.2 Focus groups**

Two focus groups were conducted during normal class time. The first focus group took place during Week 6, (the sixth simulation year) when the researcher felt students had had sufficient time to experience the game and the learning environment to be able to respond to the focus group questions. Focus Group Two took place in Week 17, that is, a week after the game finished. This second focus group provided an opportunity for students to reflect further on their experiences at the end of the simulation game and gave the researcher both an opportunity to hear both from students that were absent from the first focus group and those that attended both focus groups. Focus Group One was conducted in a conference room on campus and Focus Group Two in the students' classroom.

Focus Group One and Two comprised 15 questions (see Appendix 5 & 6); the same questions were posed to both focus groups. The questions were designed to collect data on students' perception of their learning from the simulation game and the learning environment (Q1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12); students' perceived barriers to learning (Q4); students' perception of the game (Q13, 14) and students' perception of the discussion forums (Q15).

The researcher developed themes from the student responses that were used to address the research questions in this study. The focus groups provided the opportunity for students to respond to researcher led questions; the researcher was also able to identify each participant's responses including the tone of conversation and the dialogue. Both focus groups were audio-taped and transcribed; consent was provided by all participants prior to the research being undertaken (refer to Appendix 10 – Consent form).

### **3.2.3 Questionnaire**

The researcher distributed a three page questionnaire to the students enrolled in these units during class time (see Appendix 7 and responses Appendix 8); students that agreed to participate had one week to submit their completed questionnaires, five were returned. There were 28 questions in the questionnaire, 18 questions used a four-point Likert Scale. Students were required to respond to each statement by selecting from four options: agree, strongly agree, disagree or strongly disagree; the remaining 10 questions were open-ended questions.

The questionnaire was designed to collect data on students' perception of i) their learning from the simulation game and the learning environment (Q1, 2, 3, 4, 11, 12, 13, 16, 17, 19,

20, 21, 22, 23,); ii) students' perception of the game (Q5, 6, 7, 8, 9, 18, 25, 26, 27, 28), and iii) students' perception of the discussion forums (Q10, 14, 15, 24).

### **3.2.4 Observations of students' simulation game performance**

At the end of each simulation period, the researcher had access to team simulation reports, these reports showed how teams performed in a number of areas including the two key performing areas, namely sales revenue and net marketing contribution margin (profit after costs including marketing costs). These observations contributed to the data used in this study.

## **3.3 Participants**

Participants were Advanced Diploma of Marketing students enrolled in two core marketing units: *Develop a Marketing Plan* and *Develop Organisational Marketing Objectives*. A letter was distributed to the 12 students enrolled in these units inviting them to take part in this research; the letter included reference to an explanatory statement (see Appendix 9), which they were encouraged to read, and a request to complete a consent form (see Appendix 10). Of the 12 students enrolled in these units all agreed to take part in the research.

All 12 students were invited to participate in the two focus groups. Four students participated Focus Group One and seven students participated in Focus Group Two. A questionnaire was distributed to the twelve students, five questionnaires were returned.

## **3.4 Researcher's position**

The researcher set up the discussion forum learning environment prior to the simulation game, setting rules and protocols for students to work within for the email forums and in-class discussions. The researcher was a facilitator in this learning environment.

As facilitator, the researcher supported student activities in the learning environment including the discussion forums, inputting decisions into the game and students evaluating their team results. As facilitator, the researcher left students to make their own decisions and mistakes. When required, the facilitator would support those who strayed at times, and restate the rules and protocols that surrounded the learning environment. The facilitator was mindful not to intervene too much in this learning activity. Students also received directions at times from the game's manufacturer via the game's online help desk. The researcher in a facilitator role would, when appropriate, guide students further on the advice provided.

Throughout this research, the researcher was also the students' teacher, delivering marketing theory at another time separate from the simulation classes. In the marketing theory classes the teacher made reference at times to theory and its relevance to the simulation game. As teacher he also introduced the simulation game to the class, explaining the game's scenario, demonstrating how to play the game and providing an overview of the simulation learning environment, including the discussion forums. If clarification was required about any of these areas the researcher would again take on a teaching role.

### **3.5 Data analysis**

The researcher developed themes from the students' responses from the data collection instruments that were used to address the research questions in this study. Following further analysis, these themes were broken down into sub-headings. This process followed what the literature describes as a general inductive approach for qualitative data analysis, involving the preparation of raw data files, close reading of text, creation of categories, coding text and the continuing revision and refinement of a category system (including the creation of sub categories and data reduction) (Thomas, 2003). Data was analysed from the 68 emails in the email forums, Focus Group One, Focus Group Two and from the questionnaire. Data was also analysed from the researcher's observation of student participation in the two discussion forums, namely the email forums and class-room discussion, along with teams' performance in the simulation game.

#### **3.5.1 The database**

Yin (2009) recommends a database be produced by the researcher to document procedures undertaken in a research case study so to ensure the same procedure is followed by any another researchers. In this research study, the researcher has documented procedures and stored archival records including focus group recordings, recorded transcripts, questionnaires, observations and data analysis records in a case study database.

Specifically the database consisted of transcripts from the focus groups both saved in their respective Microsoft Word document files and the recordings kept on CD; researcher observations were also saved in Microsoft Word document files. Data relating to teams' simulation game performance were saved from the simulation game via screen prints imported into Adobe Paintshop and saved into a folder for further analysis. Students' emails

were converted to a Word document and placed in individual student folders. Each file was labelled with the student's name and simulation year and saved on the appropriate hard drive.

### **3.5.2 Coding**

Qualitative and quantitative data were collected in this research study. A coding system was devised to identify participants, data instruments and where appropriate the simulation year. Pseudonyms were created for each participant, student one S1, student two S2 and so on. The email forum and focus group data instruments were provided with their own codes: emails E, Focus Group One FG1, Focus Group two FG2. The simulation years were identified by their respective year; for example, the first simulation year was 2009, the second 2010 and so on until the final simulation year 2018. The simulation years were included when reference was made to the utterances in students' emails: for example S1's 2013 email would be referred to as S1E2013. Where students emailed more than once in a simulation period, a letter was added to the simulation year to make this distinction, for example S1E2013A.

### **3.5.3 Data Reduction and Display**

The researcher used his discretion to select the most appropriate data for analysis. This task was difficult at times as there were many utterances in the email forums that could have been displayed; the researcher felt those selected were a good representation of the others.

The quantitative data from the researcher's observations of student participation in the discussion forums (email forums and class-room discussion) were transferred to spreadsheets and where appropriate presented in tabular and graphic formats. The researcher had access to data showing teams' performance in the simulation game, this was available online within the game itself; the researcher has presented the final results in Appendix 11 and 12. The qualitative data; the utterances from the email forums, focus groups and questionnaire were presented in the appropriate parts of this thesis.

## **3.6 Ethics**

Participants' identities were protected by anonymity, pseudonyms were created to identify each participant and the simulation team they were apart of when discussing the findings of this research. Participants were informed of this anonymity in the Explanatory Statement and Consent Form distributed in April 2009 (see Appendix 9 and 10). Information provided by participants was treated as confidential; the Consent Form informed participants that no information that could lead to the identification of any individual would be disclosed in any

reports or to any other party. Participants were also informed that data from the focus groups and questionnaire will be kept in secure storage and destroyed after five years unless consent has been provided by the participant for it to be used in future research.

### **3.7 Limitations of this study**

Students' participation in the class-room forums was observed by the researcher and he drew on his recollections of what took place after these events, there was no data collected in relation to the content of these discussions.

Although the results of this study can be applied to other similar populations (population generalisation), for example, other exit year twelve students undertaking a Marketing course, it may not translate well if applied to mature age/adult learners studying Marketing in a part time basis, in the work place, in the classroom or in a flexible delivery mode. These student cohorts would not have the capacity, due to the part time nature of their studies to engage in collaborative activities as extensively as the students in this research study.

### **3.8 Validity and Reliability**

Construct validity is the extent to which a research study investigates what it had intended to investigate (Denzin & Lincoln, 1994). Yin (2009) stated case study research is often criticised for the subjective judgments made in data collection. In order to increase construct validity in case study research Yin (2009) recommended using multiple sources of evidence. In this research study the researcher used triangulation, collecting data from multiple sources: from two focus groups, one questionnaire, observations of two discussion forums (email postings and class-room participation) and students' simulation game performance.

External validity tests whether findings are generalisable beyond the immediate study (Yin, 2003). As has already been stated literature has criticised case studies for its limitation in generalisation (Sarantakos, 2005). Yin (2004) refuted this criticism, stating the purpose of a single case study is to generate or expand on theory, identified as 'analytical generalization', in contrast to proving a theory or 'statistical generalisation' (Yin, 2003). The literature states if more than one of these case studies are replicated generalisation will increase (Stake, 1995, 2003; Yin, 2003). That is the empirical results of the case study can be used in other case studies to support the same theory (McCutcheon & Meredith, 1993; Yin, 2003). Using the concept 'analytical generalization' there is scope to expand on this case study, for further

case study research into students' perceptions and experiences in simulation game environments.

Yin (2009) described reliability in the context of case study research. "The objective is to be sure that, if a later investigator followed the same procedures as described by an earlier investigator and conducted the same case study all over again, the later investigator should arrive at the same findings and conclusions" (p. 45). Yin (2009) recommends the investigator document the procedures undertaken for this to occur, by way of a case study database and evidence of data collection (case study protocol). In this research study the researcher has documented procedures, stored archival records including focus group recordings, recorded transcripts, questionnaires, observations and data analysis records in a case study database.

### **3.9 Summary**

This chapter has described the methodological approach the researcher took in this research study; a description of the learning environment this study was concerned with has also been presented. The majority of the research tools in this study were qualitative to help understand the different constructions and meanings students placed on their experiences within the simulation learning environment, some quantitative tools were also undertaken to collect data about students' participation in the simulation game.

Chapter 4 will discuss the marketing simulation game's learning environment in relation to the design principles outlined in Chapter 2 in order to ascertain how the game's design supported or inhibited authentic learning.



## **Chapter 4. The Learning Environment and Design**

### **4.1 Introduction**

This research study sought to answer two research questions: 1) How does a marketing simulation game support or inhibit TAFE marketing students' authentic learning? 2) What factors influence student authentic learning while participating in a marketing simulation game?

This chapter addresses Research Question 1. The marketing simulation game's learning environment will be discussed in relation to the design principles outlined in Chapter 2 in order to ascertain how the game's design supported or inhibited authentic learning.

Chapters 5, 6 and 7 will address Research Question 2. The literature identified motivation, collaboration and scaffolding as influences on students' authentic learning experience.

Chapter 5 provides some insight into motivational factors that encouraged or inhibited students' authentic learning experiences in this marketing simulation game. Chapter 6 examines the extent to which collaboration influenced student authentic learning while participating in the marketing simulation game. Chapter 7 discusses the influence scaffolding had on students' authentic learning experiences.

The literature identified the importance of design in providing opportunities for authentic learning. If these elements are designed poorly in the simulation game they can disengage participants and act as a barrier to learning (Agostinho et al., 2005; Bahr & Rohner, 2004; Hong et al., 2003; Splitter, 2008; Windham, 2007). To determine in what way the simulation game marketing students played supported or inhibited their authentic learning experience, the authentic learning design principles identified in Chapter 2 will be drawn on. This chapter presents the students' perceptions and researcher's observations in relation to the authenticity of the learning environment based on these design principles. It discusses the simulation game's design relating specifically to the authenticity of the game's tasks, the game's visual elements, the game's content and the game's player resources.

## **4.2 Learning tasks**

In this simulation game there were two kinds of tasks: participation in discussion forums (email forums and in-class team meetings) and inputting decisions into the game. These tasks contributed to the students' graded assessment. An authentic task as identified in the literature needs to have real-world relevance (Herrington et al., 2010; Meyers et al., 2008) and be ill-defined and complex (Herrington et al., 2010). Students need to have the opportunity to break these down into sub tasks in order to complete the activity (Herrington et al., 2010), just as professionals in their field would be doing (Dede, Korte, Nelson, Valdez, & Ward, 2005; Lombardi, 2007). The tasks need to be sufficient enough to allow students a sustained period to investigate and detect relevant versus irrelevant information. In developing these authentic tasks it is important that they don't provide just one experience but encourage and enable students to explore a number of perspectives on topics (Herrington et al., 2010).

The discussion forums were established and designed by the facilitator, inputting decisions was a feature provided by the game. Both established tasks appeared to be authentic aligning with the requirements in the literature. Students playing this simulation game were required to participate in discussion forums comprising emails and face-to face meetings to assist their team in the decision making process and contribute to their organisation's annual marketing plan. Inputting decisions into the game was akin to a manager in the real world making adjustments to marketing elements, for example adjusting pricing to better meet the needs of the market. Both tasks appeared to have real-world relevance.

To ascertain whether the simulation game supports or inhibits authentic learning the data collected on each task will be analysed to determine their authenticity. This section presents an analysis of the data and makes the following assessment. The asynchronous nature of the email forums could be an inhibitor of authentic learning. The learning environment and tasks have characteristics that appear to encourage participants to act as they would do in real life, supporting the notion of authenticity; there are other characteristics that appear to inhibit or discourage authenticity.

### **4.2.1 Email forums**

Emails are asynchronous; messages are written at a particular point in time and received by others at another point in time. The email recipient may read the email within minutes of transmission or may not read it for hours or days or maybe not at all. The flow of

communication between the sender and the receiver may occur over minutes, hours or days (Stark, 2012).

In our day-to-day working lives we deal with many emails and respond to them in numerous ways. So the participation in an email forum, on the surface, appears to be an authentic real-world task, although when an email forum was situated within this marketing simulation game there were elements in this learning environment that inhibited authentic learning and other elements that supported authentic learning.

The facilitator added the email forum activity to the marketing simulation game so that students could communicate their ideas and recommendations to their team members and make appropriate decisions for the next simulation period. It was also created so that students when inputting decisions into the game would need to justify why they were doing this. The email forum was also one aspect of the students' collaborative environment. Data will be presented showing participation in the email forums; the data will reveal that some students and teams were more active participants than others. Table 1 shows the team each participant belongs to.

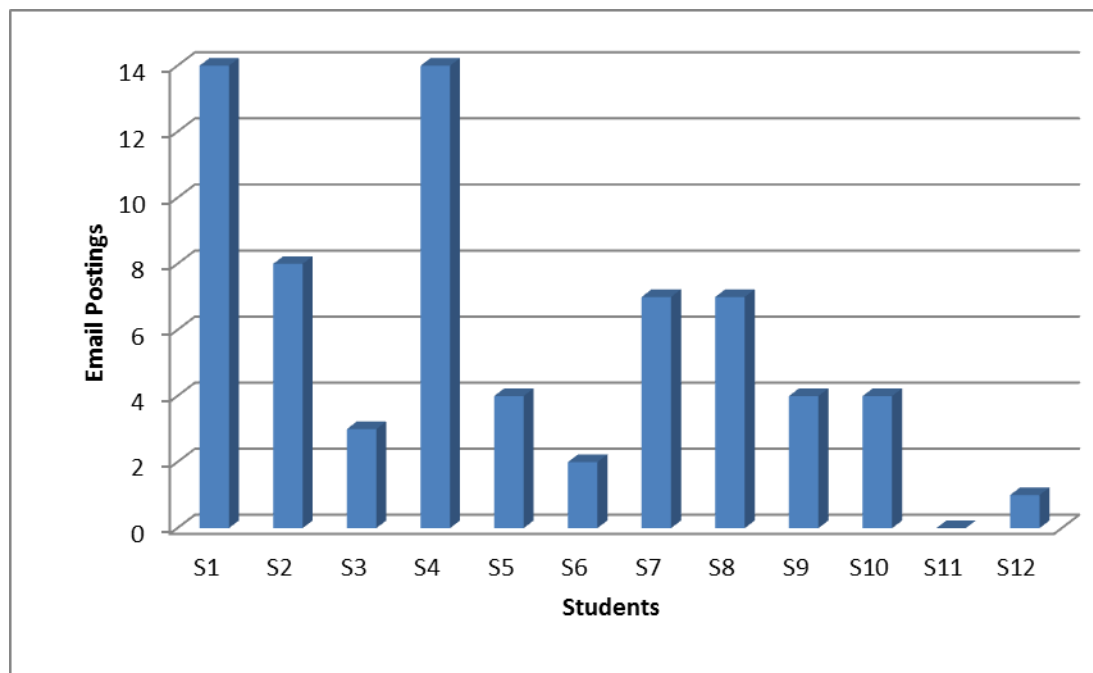
**Table 1 Simulation teams and student pseudonyms**

<b>Teams</b>	<b>One</b>	<b>Two</b>	<b>Three</b>	<b>Four</b>	<b>Five</b>	<b>Six</b>
<b>Students</b>	S1, S2, S3, S4	S5, S6	S7, S8, S9	S10	S11	S12

Commencing in the second simulation year and through to the tenth simulation year students were required to participate in an email discussion forum with their team members; that is, they were required to participate in the email forums for nine weeks. Although this was part of their assessment not all of the students participated regularly in these discussions; there were others that were very active. Some interacted with others in their team, others decided to email their thoughts to the facilitator only ignoring comments made from the leading team member; this will be discussed further in this section.

S1 and S4 made the most email postings (14 emails) over the nine week period; S2 made eight postings, S7 and S8 made eight and seven respectively. The remaining students S3, S5, S6, S11 and S12 made the least postings, from four to no postings at all, see Figure 4. Table 2

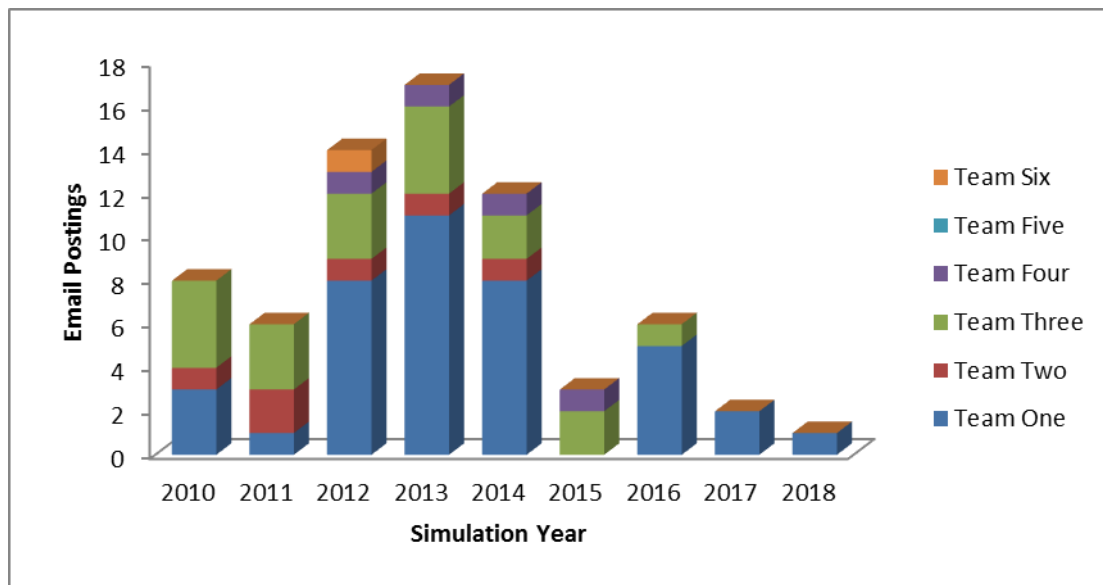
shows Team One made the most postings, 39 followed by Team Three with 18, Team Two with 6, Team Four with 4, Team Six with 1 and Team Five no postings.



**Figure 4 Number of email postings by student**

**Table 2 Number of email postings by team and year**

Team	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
One	3	1	8	11	8	-	5	2	1	39
Two	1	2	1	1	1	-	-	-	-	6
Three	4	3	2	4	2	2	1	-	-	18
Four	-	-	1	1	1	1	-	-	-	4
Five	-	-	-	-	-	-	-	-	-	-
Six	-	-	1	-	-	-	-	-	-	1
Total	8	6	13	17	12	3	6	2	1	68



**Figure 5 Number of email postings by team and year**

As Figure 5 shows with the exception of simulation years 2011 and 2015, Team One made the most email postings in every simulation period; it needs noting that Team One had the greatest number of team members (4) in comparison to Team Three (3), Team Two (2), Team Four, Team Five and Team Six (1 each). S1, S2 and S4 from Team One recorded more email postings individually than all other students participating in the simulation (see Figure 4 and Table 3).

Team One was responsible for 57% of all emails and individually S1 and S4 were responsible for 41% of all emails, both responsible for 14 of the 68 emails posted (Table 3). S1 S2 and S4 made more than one posting in a number of simulation years: S1 made five in 2012, four in 2013, two in 2014 and two in 2016. S2 made two in 2013, and 2014; S4 made four in 2013, three in 2014 and two in 2016. The only other students to make multiple postings throughout the simulation were S8 in 2010 and S9 in 2013 (Table 3).

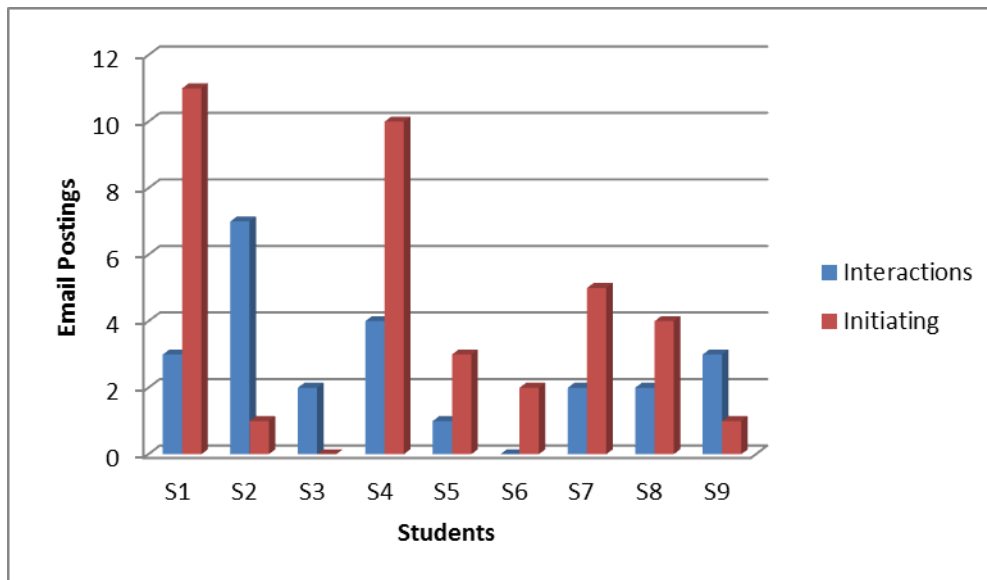
**Table 3 Number of individual email entries per simulation period**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
S1	1	-	5	4	2	-	2	-	-	14
S2	1	-	1	2	2	-	1	1	-	8
S3	-	-	1	1	1	-	-	-	-	3
S4	1	1	1	4	3	-	2	1	1	14
S5	1	1	-	1	1	-	-	-	-	4
S6	-	1	1	-	-	-	-	-	-	2
S7	1	1	1	1	1	1	1	-	-	7
S8	2	1	1	1	1	1	-	-	-	7
S9	1	1	-	2	-	-	-	-	-	4
S10	-	-	1	1	1	1	-	-	-	4
S11	-	-	-	-	-	-	-	-	-	-
S12	-	-	1	-	-	-	-	-	-	1
Total	8	6	13	17	12	3	6	2	1	68

In preparation for the upcoming simulation period that took place each week, the students were required to email one another to review their previous team results and to determine their marketing approach for the new year. Team members were required to organise themselves so that a different person led the discussion each week for nine weeks, this did not happen regularly. In Team One, S1 initiated the discussions eleven times, S2 once, S3 never did and S4 ten times. In Team Two, S5 initiated discussions three times and S6 twice. In Team Three S7 initiated discussions five times, S8 four times and S9 once (see Figure 6). S10, S11 and S12 were the only team members in Teams Four, Five and Six respectively: the only communication made (with the exception of S10 who made no email contributions) was directly to the facilitator who intentionally, and understood by all students did not respond.

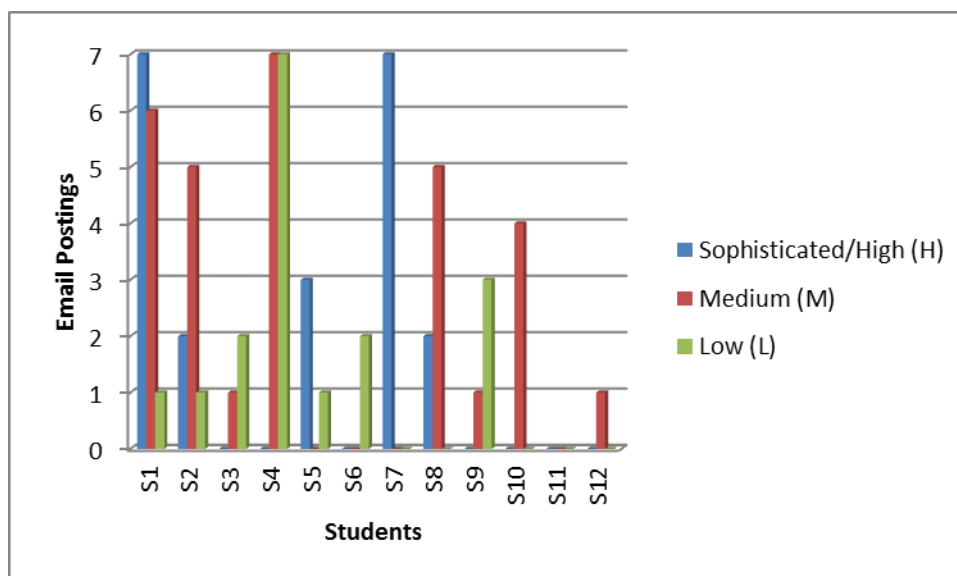
An interaction is indicated by a response made by one team member to another's email. Data showing individual interactions have been produced in Figure 6 (only individuals in teams have been included: S10, S11 and S12 have consequently been omitted). S1 interacted with fellow team members on three of the fourteen postings made; S2 interacted on seven of the eight postings made and S4 on four of fourteen postings. S3 did not contribute much to the email forums only posting three emails for the entire simulation and interacting on two occasions. S5 from Team Two interacted with team member S6's email postings once of four postings and S6 did not interact at all to S5's emails in any of his two posting. From her seven postings S7 interacted twice with S8 and S8 made seven posting interacting twice with

S7. S9 interacted twice with S8 and once with S7. Team One had the most interactions, interacting on sixteen occasions followed by seven for Team Three and only one for Team Two.



**Figure 6 Email interactions between team members**

To provide some further insights into individuals' emails the researcher classified the quality of each email into categories titled sophisticated/high, medium and low quality (Figure 7). A sophisticated/high quality email demonstrated the participant provided a very thorough discussion of their team's performance and detailed recommendations for the upcoming year. A medium quality email provided similar traits to the high quality emails but was less thorough and provided a narrower description of the decision options available. The low quality emails were very brief and described a very narrow array of decision options.



**Figure 7 Quality of emails**

The asynchronous nature of the email forums could in itself have acted to inhibit students' authentic learning. Once a team member sent their response to the team they needed to wait for their other team members to send out their responses. There were thirty six 'discussion leading' (team member leading the discussion) emails sent out over the nine weeks; of these, only seventeen responses were received from team members. The time taken for team members to respond to the initiating emails ranged from thirty four minutes to over twenty one days. Eight emails had waiting periods that exceeded two days; more specifically, on four occasions waiting times were between two and three days in duration with four other occasions exceeding three, four, five and twenty one days, respectively. Other responses included waiting times between ten to fifty hours, between five and ten hours and less than five hours.

On nine occasions, Team One members responded to S1's initiating emails. On two occasions the response time was over seventy hours or nearly three days, two occasions just exceeding fifty hours or two days and the remaining four occasions from just over one hour (one occasion), just over five hours (two occasions), just over ten hours (one occasion) and just over fourteen hours (one occasion). On three occasions S4 received responses to her initiating emails; the waiting time for these were over three, four and five days, respectively. S5 took over three hours to respond to S6's email. S7 responded twice to S8's discussion



leading emails, the response taking over four hours and six hours and S8 took only thirty four minutes to respond to S7's email and over twenty one days for the other.

One can conclude that the asynchronous nature of the email forums has produced a wide range of waiting times and the waiting times have shown no consistent or predictable pattern. Less than half of the discussion led emails (seventeen out of thirty six) received responses and the remaining discussion led emails received no responses at all. These waiting times had some impact on the authenticity of the decision making task. Students from Team One; S1, S2 and S4 described how the waiting caused by the email forum environment tended to stall the decision making process and led to frustration. For example, S4 reported some frustration in that when she made a suggestion to her team members she then had to wait. S1 confirmed "...the waiting for the others made it difficult" (S1FG1). S2 also raised her concern that the threaded conversations in the email forums did not flow.

When (S1) is at home doing his email and I'm at home doing mine there doesn't seem to be any connections to it when you read the emails back ... because it doesn't flow (S2FG1).

If a student was the final student to respond in a particular week others may have "stolen his or her thunder" forcing this team member to reiterate a previous email conversation. S2 concluded that:

Instead of the emails speaking from personal experience here, whoever starts the email off has great suggestions and they are really good and you're struggling to find another suggestion and by the time you're the fourth person it's like what else can I comment on? (S2FG1)

To overcome the limitations of the email forums, including the lag time and duplication of effort, S2 suggested the decision making process be conducted in face-to-face team meetings. S1 agreed. "I would rather we had a meeting every week and we took minutes and we had bullet points of everybody's suggestions and you can bounce off everyone's ideas" (S2FG2). S2's preference for face-to-face meetings may suggest that she values this as a more authentic environment. The influx of all conversation threads into a student's email box two to three times over each simulation period may have caused confusion for the students. The researcher did not investigate this particular point, although it is something to consider

when including email forums in a marketing simulation game environment. Another point to consider is that the requirement placed upon students to participate in the email forums may have forced students to contribute to the discussion forums just for the sake of making some contribution and this may have created an unrealistic environment.

From the evidence described above, it could be argued that the email forums may have inhibited authentic learning because in this particular learning environment the decision making task did not appear authentic. The asynchronous nature of the email forums meant that not all communication was responded to within a reasonable time and some communication was not responded to at all. The data has shown that less than half of the discussion led emails received responses and the remaining discussion led emails received no responses at all. Of the discussion led emails that were responded to, half had waiting times that exceeded two days; these outcomes and emails not responded to at all may not be acceptable in the real world. The email forum in this particular research study did not fit in with Squires's (1999) concept of contextual authenticity since there appears to be a void between the email forum and the real world. The asynchronous nature of the email forums restricting the immediacy of the message being transmitted also appeared to restrict the quality of conversations students tried to have. S2's comment above describes the disconnect between S1 and her (S2's) conversation as a consequence of this time lag '...there doesn't seem to be any connections to it when you read the emails back' (S2FG1). This disconnect between the conversations appears to suggest the context in which the communications took place was not authentic. Learning was not embedded in realistic and relevant contexts as Cunningham, Duffy and Knuth (1993) suggest they should be nor was there an alignment between the context that was presented in the formal setting (the email forum) and real life as Bennett, Harper and Hedberg (2002) suggest should happen. Cognition, according to Karagiorgi and Symeou (2005), needs to be situated in a real-world context, S1 does not appear to perceive it this way. The data suggests the design of this aspect of the learning environment was not able to provide learners with authentic learning opportunities.

The discussion so far has looked at the asynchronous nature of the email forums as an inhibitor of authentic learning. Introducing the email forums into a marketing simulation game environment appeared to inhibit some students, for many it enabled them to engage in an authentic way. The email forums provided a learning environment that may have encouraged participants to act as they would do in real life, supporting the notion of

authenticity. The content and tone of the emails demonstrated the students took these forums seriously and took ownership of the situation: for example, S7's email below shows her desire to improve her team's performance but is not shy to let her team members know about her thoughts going forward.

Hello team. As team member one mentioned, (Team Three) have done a lot better in 2011. However, we are still far behind our competitors in 2012. As we have travelled along so poorly in the years prior to 2012 we need to work twice as hard as our competitors to increase our revenue and pick up product sales.

We are dropping Sonic3 and introducing a new standard mp3 player in 2013, this is pointless. I do not believe we should be getting rid of the Sonic3 to just introduce a new product that will be basically the same. Don't you think we should look at improving the existing mp3 player and focusing on marketing and advertising it better to our consumers rather than discontinuing the Sonic3 and wasting money by introducing a new standard mp3 player from scratch? (S7 E2012)

An extract from S4, S5 and S8's emails have been included below to show these students treated their email conversations as authentic, real-life occasions.

Can I suggest we reduce radio advertising as I listen to radio most days and never heard any electronic goods being advertised with that media channel (S4 E2016).

I agree that we keep changes minimal to solidify our base revenue, the figures as you said are looking very promising for 2011. We do not want to overspend the budget as we have only just recovered our losses from 2009 (S5 E2011).

In a response to the marketing tactics suggested put forward by (S7) is spot on. I do however think that our team should not bring out a new model until the existing product has saturated the market and has made a strong name (S8 E20101).

The email forums were used by S1 not only to articulate his suggestions and reflections on the marketing simulation decisions but also to deal with other 'real' matters. He uses the emails as authentic tools to undertake authentic tasks. S1 sent this email below to S4 to explain the importance of emailing fellow team members.

The back and forth emails (as I understand) are indicative of what one would expect should we all be working for the same company and rather than getting together (which we can never find the time to) we need to “bounce ideas” off each other and as a result of back and forth emailing come up with a clear directive of what needs to be done in the year ahead AND WHO INPUTS it into the game (S1 E2013).

The following extract was sent by S1 to S2 and S3 showing them the email he sent to S4 regarding the importance of participating in the email forums.

Just a copy of the email I sent to (S4) to see if I could cool her down a bit. Hope it conforms with group protocols. (S1 E2013a).

S1 used this email to organise his team’s activities and to inform them he will be away on business. S1 has incorporated real life events into this and these other emails.

We should really try to schedule a sales meeting toward the end of the week so that we can bring together our thoughts and implement them into the 2013 FY sales agenda. As you are aware I will be away on business for this week and I will endeavour to do the best I can to assist. Please keep me informed of any progress (S1 E2013a).

The point is that the email forum environment was used by S1 to manage issues surrounding the game as one would do in the ‘real’ business world if similar issues arose. Other emails demonstrated the authentic nature of conversations: for example, the sample email conversations between S4, S5, S7 and S8 presented on the previous page. The email forums which were a feature of this learning environment, appear to have provided the opportunity for authentic learning opportunities as identified in the literature, embedding learning into realistic and relevant contexts (Cunningham et al., 1993), and providing tasks that are related to the real world (Squires, 1999).

The email forums may have inhibited authentic learning if we look at the contribution or lack thereof by some students. Some students did not even respond to other team members emails. Is failing to respond to an email something that one would do in the business world? Is this authentic behaviour? In general terms, one would argue that this is not something that would normally be done. So the inaction by some, in particular S6 from Team Two responding to S5’s discussion led email only twice and S9’s failure to respond at all to S7 or S8, may have

been so because these students did not see the situation and task as real-to-life. It may also have detracted from the real-to-life experience from those who did participate. Although the researcher did not question these students or any other student directly as to why they responded infrequently, late and sometimes not at all nor the perception of those waiting for a response, the authenticity of the forums may have been compromised.

#### **4.2.2 In-class tasks**

In this section data relating to the authenticity of the in-class tasks and the classroom environment itself will be analysed. The data shows the participants, the classroom environment and the amount of scaffolding provided had an influence on the authenticity of the in-class tasks.

The simulation classes were more informal in nature compared to the other classes the marketing students were enrolled in. Classes were scheduled every Tuesday morning and ran for three hours; students were in charge of managing their own activities during this time, including conducting their team meetings, inputting their decisions into the game and preparing their weekly emails.

#### **In-class team meetings**

Students were encouraged to participate in in-class team meetings in the Tuesday morning classes; this was a time for team members to finalise what the team was going to do in the new year and work together to input the results into the game. From the facilitator's observation, students were engaged in these in-class team meetings and the quality of the discussions resembled what would take place in the real business world. Although the classroom environment appeared to encourage authentic conversations it may not have been considered the best environment to participate in. An observation of the students' participation in this environment makes the researcher question whether this is the most conducive environment to work in. Not all team meeting were conducted inside the classroom: Team One, for example, decided early on in the simulation exercise to conduct their meetings outside the classroom environment (choosing to meet in the library's conference room); the team needed a place to discuss their strategies in private, away from their fellow competitors. In the real world, competitors would never have the ability to 'sit in' another company's strategic and marketing plans; Team One it appeared acted to make this task more authentic. Team members from Teams Two and Team Three regularly came in late

to class and did not always attend their scheduled in-class team meetings; Team One informed the facilitator that these team members met regularly outside class. The researcher did not capture any data to support the notion that the out-of-class meetings were perceived by the participants to be more authentic than those in the classroom environment nor can one conclude that the classroom environment was less authentic an environment for them. Students' participation or lack thereof in the classroom environment does raise an important question as to whether it is the best environment to support authentic learning and gain authentic experiences.

The facilitator needed to provide appropriate scaffolding to make the classroom more authentic according to feedback received from Team One participants (Focus Group One). Team One felt Team Two and Three participants' behaviour undermined the authenticity of the team meetings task, suggesting a way to improve this would be to require all students to participate in scheduled in-class team meetings (8:30 am – 9:30 am) every Tuesday and after these meetings to present the facilitator with a written report of the discussions made. The students felt this was more real-to-life and there would be consequences if the reports were not forthcoming. Team One members did not believe the other team members took the in-class team meetings seriously nor did they feel their actions reflected what would happen in a real work situation (FG1Q15).

Students did not always manage their time well in the three hour simulation class. The environment offered many distractions that could take the students away from the task at hand, including socialising, linking into social media platforms such as Facebook and playing computer games. This would not be accepted by colleagues and supervisors in the real world. To keep the environment authentic, however, the facilitator was mindful not to intervene too much in the students' activities during this time; the quandary is either leaving students to their own devices and potentially reducing the authentic nature of the task or providing more scaffolding that could also reduce the tasks' authenticity. The literature in Chapter 2 highlighted this quandary for example, (Herrington et al., 2010; Jonassen et al., 2003; Tan & Biswas, 2007; Tonks, 2002). The classroom setting itself may have inhibited the authentic learning experience. The classroom was a computer room, not a conference or board room that business people would typically use in the real world. The computer room may not have been the most conducive environment to run a meeting in. As mentioned above Team One found they needed a private place to hold their meetings. One cannot conclude that Team

Two and Three students ran their regular meetings outside this environment for the same reason.

### **Decision making tasks**

Participants were required to input decisions into the simulation game. Did these tasks support an authentic learning environment? According to Herrington, Reeves and Oliver (2010), for authentic activities to occur they need to involve ill-defined complex tasks whereby students have the opportunity to break these down into sub-tasks in order to complete the activity. Inputting decisions into the simulation game appears to satisfy this requirement. Students were required to make marketing decisions relating to pricing, product development, distribution and promotion; each of these tasks were required to be broken down further: for price it was how much retailer margin to offer; product development required decisions to be made in relation to technical specifications and style; distribution required further decisions about the type (s) of distributors to sell your products to and inventory decisions (ordering future stock for all products); promotion required decisions to be made for advertising (web advertising, TV, radio, newspapers, magazines); sales promotion (trade shows, coupons, + more) and personal selling (number of sales reps and salaries). These tasks appear to satisfy other requirements for authentic learning tasks having real world relevance, resembling what would be done in the real world (Herrington et al., 2010; Meyers et al., 2008), tasks that are integrated across subject areas (Herrington et al., 2010) and providing learners with related experiences (Jonassen et al., 1998; Meyers et al., 2008): for example, marketing strategies needed to be considered with other marketing topics in mind such as consumer behaviour, marketing metrics and inventory management; these inter-linked areas provided related experiences.

Another requirement for authentic activities to occur, according to Herrington, Reeves and Oliver (2010), is for students to be involved in the activity over a sustained period of time. The marketing students were required to make decisions for ten simulation years; a simulated year was conducted every week for ten weeks. Data showed that some students found the time between simulation periods was inadequate.

S1 'I think a year in a week is too short'. S2 'Not to have a year in one week maybe play the game for longer' (Q27 Questionnaire S2). S2 'Maybe even four weeks

between simulations'. S3 'I don't think so maybe two weeks' (S1, S2 and S3 Focus Group One Q6).

It appears the decision making process for some needed to be extended to allow students more time to absorb the situation their respective teams found themselves in. The game may not have met this particular design criterion outlined by Herrington, Reeves and Oliver (2010). Although the researcher did not evaluate the optimum amount of simulation years nor the duration of each year the game should run for, a week per simulation for some students was too frequent and ten weeks was too short a time. The data suggests these timing aspects may have reduced the authenticity of the decision making task in some of these students' eyes.

In this section the simulation game's tasks were analysed to determine their authenticity. The email forums provided a learning environment that may have encouraged participants to act as they would do in real life, supporting the notion of authenticity. The content and tone of the emails demonstrated the students took these forums seriously and took ownership of the situation: The asynchronous nature of the email forums however appeared to inhibit authentic learning.

The data showed participants, the classroom environment and the amount of scaffolding provided had an influence on the authenticity of the in-class tasks. From the facilitator's observation, students were engaged in in-class team meetings and the quality of the discussions resembled what would take place in the real business world. Although the classroom environment appeared to encourage authentic conversations it may not have been considered the best environment to participate in. Students' poor participation in the classroom environment raises an important question as to whether it is the best environment to support authentic learning and gain authentic experiences.

The decision making task appeared to satisfy requirements for authentic learning tasks having real world relevance, resembling what would be done in the real world (Herrington et al., 2010; Meyers et al., 2008), tasks that are integrated across subject areas (Herrington et al., 2010) and providing learners with related experiences (Jonassen et al., 1998; Meyers et al., 2008): for example, marketing strategies needed to be considered with other marketing topics in mind such as consumer behaviour, marketing metrics and inventory management; these inter-linked areas provided related experiences. The decision making task also appeared to



involve students in activities over a sustained period of time another requirement for authentic activities to occur (Herrington et al., 2010), although data suggests the timing aspects may have reduced the authenticity of this task.

### **4.3 Game design elements**

In this section, the game's design elements will be discussed in relation to the game's visual elements, content and player resources. The ten authentic learning design principles presented in Chapter 2 have been used to analyse the extent to which these design elements provided authentic learning experiences for marketing students in this study. The game's visual elements refer to the game's onscreen images, graphics and other visual displays. The simulation game's content refers to text based information students encounter while playing the game: this includes the game's description of the scenario, the content surrounding the 'in-game' resources, including hints and tips provided directly to each team, and reports (the outputs) provided by the game (market research, forecast and weekly simulation results reports). The simulation game's player resources have been analysed in terms of their ability to provide real-to-life support to the students.

To encourage authentic learning the learning environment needs to provide authentic contexts that reflect the way the knowledge will be used in real life (Herrington et al., 2010). In this section, the ability of the marketing simulation game to provide students with real-to-life experiences will be discussed. It will be argued that features of the simulation game, the game's visual elements, content and learner resources both provided authentic contexts in some areas and inhibited these in others.

#### **4.3.1 The game's visual elements**

In Focus Group One Team One members S1, S2, S3 and S4 made direct reference to the visual elements of the game, S6 and S7 also made comments in the questionnaire. I have included a representation of these students' comments below. Focus Group One and S6 and S7's questionnaire responses were the only data the researcher received from participants relating to the game's visual design. There were no endearing comments made about the game in this area.

S1 'Boring interface, little bit dated ...I don't even know what the product looks like'.

S4 '[It needs to be] more interactive'.

S3 'Initially it was designed for educational purposes and it shows ...It's not a game that was built for enjoyment or fun, but they added that in later, it's like a later aspect and it shows'.

S1 'I don't think you need to compare it to (commercial games) ...doesn't need to be 3D I think it needs a little bit more to be engaging.'

S3 'It was aimed at being educational and not aimed at being engaging it's aimed at completing a task and giving you an idea.'

S3 'It's not aimed at being engaging and getting you in like thoroughly involved.'

S2 'You don't want to go on it, you go on it when you have to go on it.'

S3 'I don't go on it for recreational purposes and as a game "a game" that's kind of what you intend to get and the educational side is like a bonus. It's a simulation game I guess.'

S1 'I looked forward to it I really thought it would be something I would enjoy.'

S1 'After two weeks it's like is that all there is?'

(FG1)

S6 'More visual aspects such as pictures more graphs to make it more user friendly' (Questionnaire Q27).

S7 'The web design is plain and boring' (Questionnaire Q27).

Quinn (2005) identified the importance of engaging elements in simulation games to encourage learning. Comments made by S1, S2, S3 and S4 show they did not see the game as having engaging attributes. Other visual elements identified in the literature mentioned the importance of the onscreen environment not being complex (Bahr & Rohner, 2004) and ensuring there is not too much text in the simulation game (Hong et al., 2003). Aldrich (2004) also recommended a balance be provided between game elements and functional elements in the simulation game. There was no evidence to capture students' perception of these other visual elements.

In summary, these students did not perceive the simulation game to be an engaging game: they felt it lacked game like qualities, it was boring, it was not fun or enjoyable, it had been

designed for educational purposes and it was something they had to do. They felt there needed to be more interaction between the game and the 'player'. S1 stated he did not even know what the product he was marketing to the world looked like. The lack of engagement from this sample of comments from four of the ten participants suggests the game's visual elements could have been better designed. It is difficult to draw any conclusion, however, that these visual game elements detracted from students' perceptions of the game's authenticity. The only evidence to suggest this did occur is from S1's comment: '...I don't even know what the product looks like'. (S1FG1). This appears to suggest the visual design, the failure to show the product did not abide by the literature's recommendations for authentic learning design: that is, the need to embed learning in a realistic and relevant context (Cunningham et al., 1993) and align the context that is presented in the formal setting (the simulation game in this case) to real life (Bennett et al., 2002).

#### **4.3.2 Content - The simulation game's scenario**

The literature identified the importance of the game's scenario in developing an authentic learning environment. The more authentic the scenario the better the transfer of learning is for participants (Hill & Semler, 2001). The scenario needs to be interesting (Hung et al., 2004; Prensky, 2001; Quinn, 2005) and well designed (Agostinho et al., 2005; Splitter, 2008). The design needs to include authentic elements such as authentic goals, rules and challenges and these elements "need to be combined in an interesting, entertaining and addictive way, to make the player have fun and care" (Prensky, 2001, p. 8). The problem presented to the learner needs to be ill-structured (Karagiorgi & Symeou, 2005), have an element of unpredictability (Quinn, 2005) and be interesting, relevant and engaging (Jonassen et al., 1998). The story-line should not be a simplification of real-world contexts: the content should be presented as it naturally occurs (Grabinger, 1996; Herrington et al., 2010; Spiro et al., 1987).

The game's scenario generally appeared to be perceived as authentic by most students. The content and tone of emails in the email forum showed students approaching the game in an authentic way. They appeared to take on their roles as executives in charge of their organisation's marketing seriously; the majority of the emails show genuine conversations that one would have in the real world. Samples of student emails have been included in Appendix 13. Two students are exceptions to these observations. It may not be the case that S10 and S12 perceived the scenario to be less authentic than other students' rather, because

these students did not have any other student to email may have caused their emails to lack a sense of authenticity. S10's email sounds more like an assessment piece being submitted to the teacher than a genuine marketing director reporting on the current status of his organisation. S12's email lacks authenticity as he refers to other team members (of which he has none) and later asks for their recommendations.

Although most students appeared to embrace the game's scenario, the simulation game appeared to encourage number crunching at times and this had an impact on some students' perception of the authenticity of their learning environment.

### **Game's output: Marketing logic vs number crunching exercise**

When it came time to input their decisions into the simulation game, some students treated this task, at times, as a number crunching exercise and, at other times, they approached the task in a more authentic way using what the facilitator described in Focus Group One and Two as 'marketing logic'. Students who applied marketing theory to the game were using marketing logic responding as a marketer would do in the real world; students trying to beat the game by 'cracking the code' tried to crunch numbers. It appeared it was tempting at times for students to try and succeed by crunching numbers, that is placing numbers into the simulation game that they thought would generate the best results (for example higher profits) without considering the marketing implications of these actions. It also appeared that the story-line or the simulation design generally did not embrace some students to think as a marketer would: instead the game appeared to encourage number crunching. The following discussion between students and the facilitator shows students' thinking in this area.

Facilitator 'Did you use the marketing logic or did you try and crunch numbers at times during the game?' (FG2).

S3 'We crunched numbers at times' (FG2).

S5 admits to number crunching although marketing logic was what he believed brought him success. He was using more real-to-life techniques acting as a marketer would do.

S5 'I used marketing logic'. Towards the end just to fine tune I did crunch numbers but a lot of the success we had in the turnaround towards the end of the simulation was the market research that we purchased, without that there

was no way I could have gained ground and grabbed the top spot. I had to employ, I suppose, traditional marketing techniques' (S5FG2).

S3 'I kind of learned that the simulation was based on numbers. Just because you have more sales reps doesn't mean they are going to perform better than those who are paid marginally higher' (S3FG2).

S2 'Sometimes we cut our advertising purely just to put the money somewhere else, we didn't actually look at it realistically and say this is what we are going to do because of this, we just took the money because we didn't have the money to spend on advertising...' (S2FG1)

S1 responded to S2's comment believing her approach was actually authentic, something that would be done in the real world. 'That's what business does. Admittedly they might be a 100 million dollar company but everybody still operates in the same way. Profit is what your objectives is' (S1FG1). There is a mix of perceptions here of the game and its authenticity. S1 and S5 appear to view the decisions in the learning environment as real-to-life whereas S2 and S3 saw the simulation as an unrealistic number crunching exercise, something an expert in their domain would not do. It appears some students learned crunching numbers was something the game allowed you to get away with, as suggested by comments by S3 and S5. The game, although designed to respond to marketing logic as articulated in the game's player manual, also allowed students to get away with number crunching and, believe, rightly or wrongly, that this is how the game can be played. Students did not appear to perceive they were participating in an authentic activity all of the time; in this case, they did not believe they were situated in real-world contexts, something the literature states is important if learners are to engage in authentic learning (Alessi & Trollip, 2001; Jonassen, 2000; Jonassen et al., 1997; Lunce, 2006).

Team One tried to approach the game in an authentic way; they did not however perceive the mechanics of the game operated in the same way (FG1). They used marketing logic thinking like marketers but felt the output (performance results for example sales) the game produced was not aligned to marketing logic. They perceived number crunching; increasing spending into a particular area (for example, advertising) for spending sake would reap rewards and consequently acted in this way at times. The following is part of a conversation Team One members S1, S2 and S3 had in Focus Group One about their approach to the game. It is

interesting to hear that the team approached the game in an authentic way, thinking logically about what they, the vice presidents of the organisation, should do going forward; when they evaluated what happened following their 'game play' over their time they perceived the game responded in a less authentic way.

S3 'The game works in somewhat in a backwards way.'

S2 Yes

S3 '...like if you want to make your advertising more effective you spend more money, in a real business you would put it into different areas and make it more efficient, you would cut it down... In this game you put more in.'

S1 'Putting more sales staff on increase the wages.'

S2 'It's quite a simplistic method and it hasn't got anything to do with the real world I think which is probably why the younger ones are getting it [referring to team members from the other teams]. I'm serious maybe they aren't looking at it in as much depth as we are.'

S3 'That's where we are going wrong!'

S2 'That is where we are going wrong!'

S1 'If we didn't look at it in a real business environment we would probably say let's just cut the salaries, let's cut the number of staff, they're not performing in the discount areas, let's just cut it and we have more net marketing contribution (profit after marketing expenditure) because it's money we are not spending on the advertising that really affected us in our overall sales revenue because we didn't have enough sales staff out there pushing the product.'

Team One, although approaching the game in an authentic way, were it appears let down by the game's functionality since it was perceived by the students to operate or respond favourably to number crunching. The task itself appears to meet what the literature describes as relevant for authentic learning, resembling what would be done in the real world, being an ill-defined complex task and conducted over a sustained period of time (Herrington et al., 2010). However the game did not satisfy the design requirements for authentic contexts: for example, aligning the context in the formal setting with real life (Bennett et al., 2002).

Although S5 admitted to number crunching at times, he explained that for most of the time, he used marketing logic. He perceived that the game responded logically to his marketing approach and it did not appear to be a number crunching exercise. S3 agreed with S5 in this conversation with the facilitator below that carefully selecting where you allocate your marketing spending was a better approach than just throwing numbers at it.

I think the key to that was not so much how much because I see there were firms that spend a significant lot more than I did. I think it was where [where you spent your money on promotion] (S5FG2).

Facilitator 'It's the marketing logic S5 and S3? 'Yes, it's not a matter of going in with the biggest guns it's about making some well placed shots'(S5FG2). 'Instead of spraying' (S3FG2). 'Really targeting where your markets is' (S5FG2).

S5 took on an authentic approach striving to achieve market share and profit objectives over a four year period. In the first two years he carefully selected his company's marketing advertising spending and for the remaining two years he adjusted his price to achieve the desired profitability. He had adopted a long-term approach trying to improve his company's standing in the game.

'...in the first two years the aim was to regain the market share through price wars and well placed advertising and the next couple of years was to improve the profitability of the product because obviously we had kept the price so low and the product cost so high we weren't making any money what so ever and the next stage was to get higher profit by increasing the price slightly' (S5FG2).

Further evidence of S5's authentic approach to the game came when he explained how he customised his marketing decisions to each customer type (market segment). The content the game provided allowed S5 to take on a real-to-life approach to the game, supporting the literature in relation to authentic contexts, for example, (Cunningham et al., 1993; Karagiorgi & Symeou, 2005).

Yes it was good that we had the other segments, there was a very clear distinction between them, like they vary quite dramatically so you knew you had to create a marketing plan for each of those units. You would have one that was the sports [sports segment model] a premium product. I looked at the reports, price was irrelevant, they

would look for product spec and styles and then they had a preference for magazines and newspapers because obviously they're more articulate those sort of people and they have different price sensitivities standards which were very very very sensitive to price. I changed the price by \$1 and there was a big change (S5FG2).

There was further data captured on students' perception of the game's story-line/scenario. The game provided regular business reports to students on their team's performance and how they compared to their competitors. The game was only geared towards providing and receiving quantitative data: for example, how many sales were projected, the amount of inventory available, the number of sales representatives visiting particular retail stores, how much money was spent on radio advertising. The game did not provide any feature that allowed students the opportunity to receive qualitative information or input qualitative information. For example, did increasing a sales representative's salary actually encourage that sales person to work harder? How did sales representatives react when some of their colleagues were fired (which teams did do at times). What did consumers think about particular features of an organisation's products? This lack of ability to receive or input qualitative information or questions appeared to reduce the authenticity of some of the students' experience. According to S2 the omission of these qualitative measures took away some of the game's authenticity, a matter she raised in Focus Group Two. 'They (company sales reps) would have been trying to push it a bit harder (the product) knowing someone has been sacked from not pushing the product you can't put all that into it (into the game)' (S2FG1). S2 is accepting of the game's limitations in this area although she noted the game was only presenting part of the story. S5 also described how the simulation game could have become more real-to-life; although judging from his upbeat response S5 was not criticising the game per se, he, too, is accepting of the simulation game's limitations.

It's very hard to measure or make changes based on the qualitative field. You couldn't do, say like you would do in the real world a field trip, and have a chat to your typical consumer and go ok, 'What was good about the mp3 player?' and actually be surrounded by your actual environment, of course, it would be hard unless you were doing it for real. I think it is probably as good as it gets (S5FG2).

According to the literature on authentic learning design, students should not be presented with a simplified version of the content in the game, the content should be presented as it



naturally occurs (Grabinger, 1996; Spiro et al., 1987). In this simulation game, the omission of qualitative instruments has provided students with only part of the picture, reflecting only part of the real world situation and reducing the authenticity of the learning environment.

There is one last observation made in this research study about the game's scenario and its perceived authenticity. Prior to playing the game, the simulation game's resources, specifically, the PowerPoint slides, the player manual and the introductory email (all provided by the licensing company) described to the students the game's scenario. The PowerPoint slides introduced students as newly appointed Vice Presidents of a portable CD player organisation; they were entering the year 1997. The player manual stated that the students had been appointed Vice President Marketing of an m2g firm in the portable music player (PMP) division of a larger audio equipment corporation; no date was specified. The introductory email stated 'You will have the opportunity to get hands on experience making all the key decisions required to run a Sales and Marketing Campaign.' ...for an organisation in 'the Portable MP3 Music Player division within a Consumer Electronics Corporation.' (Smartsims introductory email to students). None of these explanations of the game's scenario were the same. When the students actually had the opportunity to play the game the scenario in the player's manual was the only one consistent with the game's scenario. The students only learned they were in the year 2009 when they commenced the game. The point that is being made here is that these inconsistencies may have caused students to be a little confused and this may have detracted from the authenticity of the game; learning did not appear to be embedded in a realistic and relevant context as Cunningham, Duffy and Knuth (1993) state is a requirement for authentic learning.

### **Students extending the game's scenario**

Participants, as discussed, appeared to embrace the game's scenario in the email forums; Team One members took this even further at times, extending the game's scenario. Did members of Team One become so involved in the authenticity of the game that they felt extending this was a natural thing to do or did they feel the game was not as authentic as it should be and this was their way of improving it? In Focus Group One S2 and S3 explained that they extended the game's scenario to improve their product's offerings in the market. This could be interpreted as S2 and S3 looking to create a more authentic situation for their organisation.

I know you don't like my collaboration with the Australian Heart Foundation (S3FG1).

I like it I don't know how to apply that (S2FG1).

You can't apply it, it was just a suggestion. Maybe I've gone off on a tangent I thought you were (referring to the facilitator) looking for how you can improve your product not necessarily relating it to the game (S2FG1).

I did the same when referring to going to the Caribbean for Friday night drinks with you (referring to the facilitator) (S3FG1).

S1 in his 2013 email made reference to companies forming alliances, joint ventures and take overs. The simulation game was not capable of fulfilling these scenarios.

The Youth is going through the growth stage where typically, Competitors are attracted into the market with very similar offerings. Products become more profitable and companies form alliances, joint ventures and take each other over. Advertising spend is high and focuses upon building brand. Please have a look at the recommendations for advertising through the product lifecycle and consider the recommendations (S1 E2013).

Team One made suggestions that went beyond the game's capabilities, suggesting pedometers be sold with the mp3 product, and using celebrity and Australian Heart Foundation's endorsements. Team members also created their own story-lines; this included information about the stock market and the consumer market. Consumers according to them were becoming more internet savvy. Finally, they created unbelievable scenarios about themselves, including flying to the Caribbean, obtaining valuable information from a friend in the Australian Competition and Consumer Commission (ACCC) and being unable to attend work because they were sick. Samples of these have been included in Appendix 14.

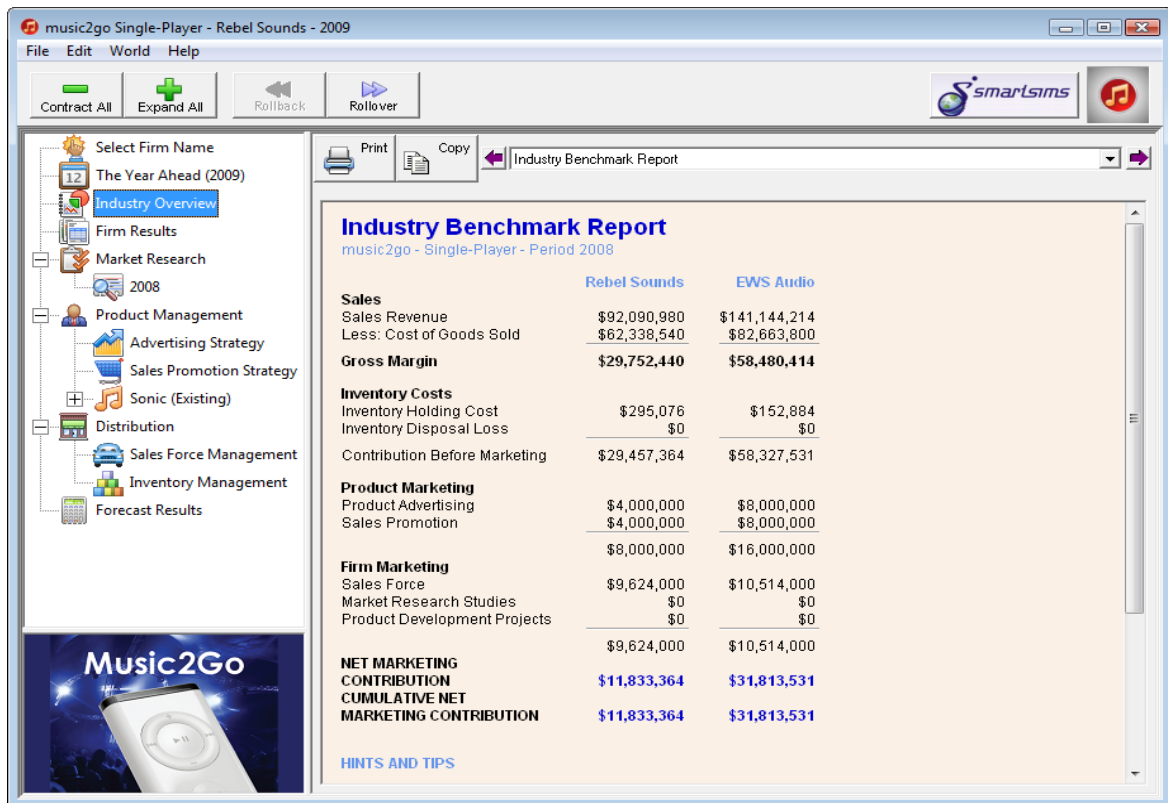
### **Did the learning environment provide tools to solve tasks and were they provided in a timely manner?**

According to Jonassen (1998), to create authentic learning environments the learning environment needs to be designed so that learners are provided with tools to solve their particular tasks. It will be shown in Section 4.3.3 that students had an array of resources to

assist them in the simulation game. The data will show some students found that these supported them in the game and others found them less helpful. A discussion of these resources and their authenticity will be identified. These resources appeared to provide information students needed in the learning environment in a timely manner, satisfying a design characteristic recommended to encourage authentic learning (Jonassen et al., 1998).

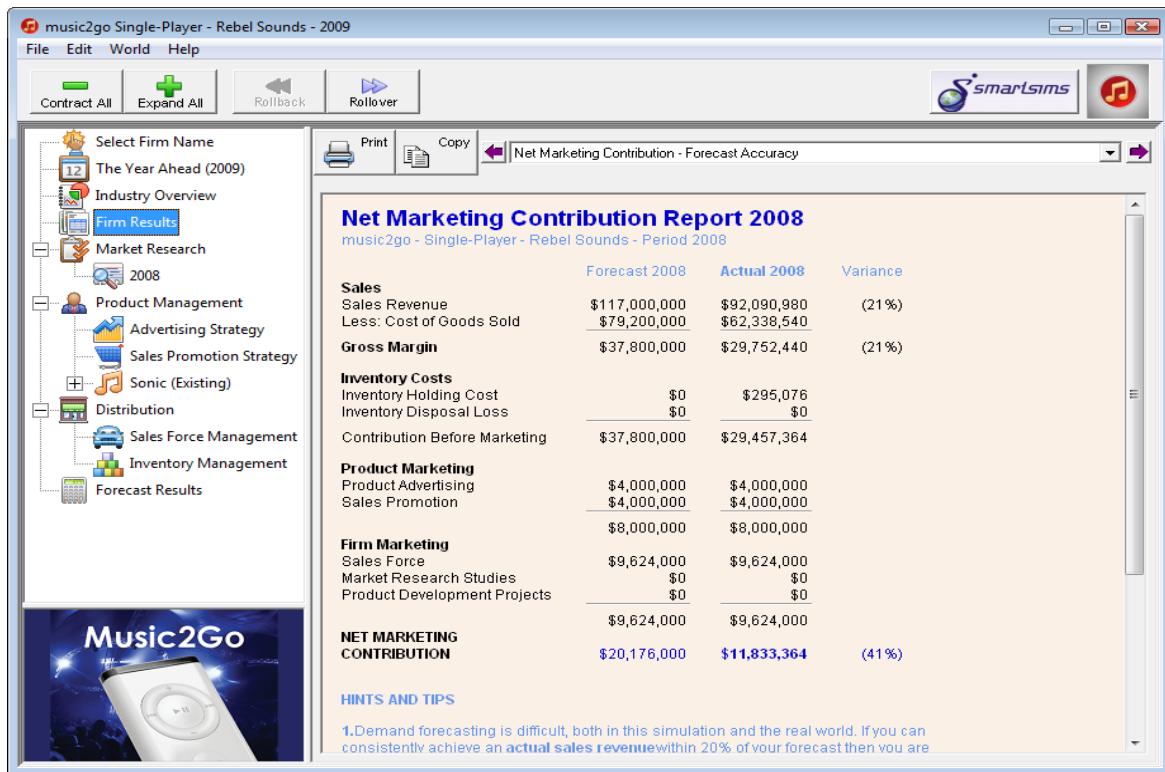
#### **4.3.3 Content – ‘In-game’ resources**

In this section the ‘in-game’ resources will be reviewed to determine the perceptions students had of these as supporters or inhibitors of authentic learning. At the commencement of each simulation period the game provided students with access to ‘in-game’ resources: these included an Industry Benchmark Report (see Figure 8) and a Net Marketing Contribution Report (see Figure 9), free tips and hints (in-game advice) and access to market research reports that came at a price from \$500,000 to \$1,000,000 per report. The Industry Benchmark Report provided a comparison of each teams’ sales performance for that particular year, their respective sales revenue and expenditure. Students could see whether their team and their competitors made a profit or loss for that particular year, as well as seeing how their team and competitors profit fared over the simulation journey thus far, that is, their cumulative profit. The Net Marketing Contribution Report presented students with a comparison of their forecast or projections in relation to actual sales, inventory costs, product marketing, firm marketing and profit (net marketing contribution margin). Students had access to other reports referred to as Market Research Reports. These reports did not come automatically to students: students had to make a conscious decision to purchase these when they felt it was appropriate during the simulation exercise. From the facilitator’s perspective the ‘advice’ and reports provided by the game were real-to-life and were what a business executive evaluating the marketing activities of an organisation’s business would expect to receive. The advice and reports appear to be authentic and meet the design principles identified in the literature, resembling what would be done in the real world (Herrington et al., 2010; Meyers et al., 2008; Squires, 1999). They therefore appear to be authentic tools for students to experience authentic real world situations. What about the students? What did they think of these resources?



Screenshot reproduced with permission from Smartsims International Ltd

Figure 8 Industry Benchmark Report



Screenshot reproduced with permission from Smartsims International Ltd

Figure 9 Net Marketing Contribution Report

Evidence obtained in the second focus group showed S5 found the game's advice to be helpful and supportive.

It said [the game] alter your projections, so I used that it was helpful. At least it told you you're over projection, you're under projecting and there were some bits where it said you could have sold more but you ran out (of stock) so obviously, you ran out of stock you're under projecting that helped I knew I was losing too much money or you're spending too much money and holding stock (S5FG2).

Contrary to this, S5 found the game's recommendations in the Industry Benchmark Reports to be unhelpful and confusing. At the bottom of these reports teams received specific feedback about their marketing expenditure: for example, the report may advise the team to increase advertising as a percentage of sales in the next year or reduce the number of sales representatives.

We were looking at the overall review. We were saying that the amount of advertising that I was doing was too low. I had such a huge profit, I had a maximum profit. I don't think it was too low at all. If anything return for a dollar was great. If it's telling you it's poor what it's telling me is if I put more money into it then I would have got an even bigger return. I did try that and no, I didn't actually get that return, so doubling your advertising was not doubling your return (S5FG2).

It is not conclusive here whether S5's experiences, both positive and negative, had an effect on his perception of the authenticity of the game's content. In the real world, business people may get poor, unhelpful or confusing advice, and one could get further feedback from the consultant or adviser; in the game one cannot get this feedback, here the authenticity of the game may be lacking.

The market research reports that teams had the opportunity to purchase were perceived by S2 and S3 to be inadequate and poorly explained. S3 'We bought reports and they didn't really tell us anything' (S3FG2). 'They told us what we'd done' (S2FG2). 'You're never sure what you're going to get' (S2FG2). In contrast S5 found market research reports to be extremely effective. Comments from S5 show the advice provided guidance and assisted him in making what appears to be authentic business decisions.

It made it very obvious what you should do, like advertising effectiveness by media type ...effectiveness on TV was 100%; and effectiveness on radio was 100% magazines was 70%. So it was very obvious that when you go on to customise your advertising preferences you would go 'Hey I am going to spend ten million on TV and ten million on radio and bugger all on the rest'. It made it pretty simple (S5FG2).

S5 also described the benefits some of these research reports provided him with, and again it appears to have assisted him in thinking and acting in an authentic way as would a professional in his particular field (Rule, 2006; Windham, 2007).

I bought pricing reports so I knew what your prices were [referring to the other group present] and I looked at another report which is what consumers thought was a good price, so all I did was beat your prices and get as close as I could without sacrificing profits. There was one stage when a consumer was demanding a certain price which I

was making a loss on, but I thought if I could get the market share then I'll be ahead of the curve and then each year you can develop your products where the production costs are less. So I projected that over time I would get that money back (S5FG2).

In addition to these perceptions, there were numerous references made by students in the email forums about the game's market research reports; a sample of these has been included below. From observing the content of these emails students appeared to perceive the game's market research reports as authentic resources that encourage authentic thinking. They also appear to satisfy what Herrington (2010) identifies as authentic design requirements for authentic contexts, reflecting the way knowledge will be used in the real world (Herrington et al., 2010) and providing sufficient resources to enable participants sustained examination (Herrington et al., 2010).

As I mentioned earlier this week, one of our competitors saw tremendous gains in the market and we should be purchasing some market reports to determine where and how they are making such significant gains (S1 E2013b).

After looking at the market research, our products lack the technical specifications compared to our competitors. The styling is well above the competitors, but it does not justify the price being 10% higher. Our specs need to increase or we need to lower our pricing for our mp3 players (S7 E2015).

I was originally unsure between buying 'Product awareness increase by media' or 'Department Stores – Product stocking' or both. I decided upon purchasing 'Department Stores – Product Stocking' as I felt department stores was an outlet that I was focusing upon but not gaining enough sales. The research provided the information that showed I was leading the sales (S10 E2013).

I really think we need to do more to decrease our spending in the sales promotion department and try to apply some of those savings to advertising. I really believe that we are better off advertising than having large numbers of reps on the road. The consumers are now very aware of MP3 player technology and are internet savvy. Most of our customers will have done research on the product prior to purchase (S4 E2014).

Until we have undertaken more research on the youth market then I believe it would be a mistake to try and launch this product at this stage (S2 E2010).

Team Four has spent money on market research and have increased their sales force by 11,000,000 we should do the same, otherwise we may fall behind (S9 E2011).

Our pricing strategy was completely revamped across the board, after much consideration of the pricing research reports; we have obviously struck a sweet spot with a lower cost strategy. Undercutting our competitors and focusing on reducing production costs should be our key focus for the upcoming year. This includes upgrades to all 3 segment lines (S5 E2013).

### **The simulation game's player resources**

The simulation game provided students with player resources to assist them in playing the game. These resources were the player's manual, PowerPoint slides, an introductory email, quizzes and help desk support. S3 was the only participant to raise concerns about the quality of the player's manual; he found the manual was not always consistent with the simulation game and found the information was misguided and misleading.

We tried to use the manual (player's manual) for that but the manual is not current with the version of the game. When you picked magazines fields there were six magazine fields and I think there were about eight in the manual (S3FG2).

We went by the manual not so much the research reports. The manual says that the standard is in the middle of the other two; the manual is not current. We found it hard when it says the best magazine choice is Teen lifestyle and in the game Teen lifestyle doesn't exist (S3FG2).

Yes when it says [the manual] this will have all the information you will need the information is misguided and misleading, I found it quite hard to determine where we were going wrong and what it says what to do (S3FG2).

It has been mentioned earlier in this chapter that the description of the game's scenario presented in the PowerPoint slides, the introductory email and the player's manual were not consistent with one another. The player's manual was the only resource that was in line with the simulation game. In this case, S3, who spoke on behalf of his team, identified



inconsistencies between the player manual and the game may have caused further confusion for some students and this may have detracted from the authenticity of the game.

### **Quizzes and help desk support**

S4 was the only participant to make reference to the game's quiz. S4 in Focus Group One stated 'I liked the quiz we had ... maybe make it more a bit more detailed' (S4FG1). Although this was a positive experience for S4 one cannot conclude this contributed to the authenticity of the learning experience. Students had the opportunity to seek advice and support from the company that owned the simulation licence. They were available to assist with the technical aspects of the game: for example, one team found out that there was a twelve month delay between introducing a new product and the stock becoming available. The facilitator's observation of the students' engagement with the online help desk support facility and feedback received was that students found this to be a very authentic experience. They were dealing with real people and they received a real email with real-to-life information.

## **4.4 Collaborative tools and opportunities to articulate and reflect**

To provide opportunities in learning environments for authentic learning the literature identified the need to provide tools for collaboration (Herrington et al., 2010; Jonassen et al., 1998) and to allow learners to articulate (Herrington et al., 2010) and reflect on their experiences (Herrington et al., 2010; Hung et al., 2004). These three elements if designed well can enable learners to experience authentic learning by learning with others (Kruger et al., 2001; Rule, 2006; Windham, 2007). The learning environment provided students with collaborative tools to allow them to articulate and reflect. These were formal settings for students to work with others and hopefully learn authentically with others. The email forums and classroom meetings provided these formal settings, formal in the sense that the facilitator set these up for students to participate in and make contributions by specific deadlines: namely by 11.59 pm every Tuesday for email submissions and classroom meetings to be held within the three hour timeframe allocated in the weekly simulation class. The quality of these collaborative tools will be discussed further in Chapter 5.

Students in this simulation game had the opportunity to articulate and reflect in these structured, collaborative settings and informally in their own organised spaces and time. There was evidence from utterances in most email forum conversations showing students

reflecting on their past performances, strategies and ideas for the future. Although it was a requirement for students to participate each week in these forums, utterances show discussions occurred naturally; the facilitator, although a passive observer, did not interfere with student conversations. An extract from S4's 2017 email reflecting on her team's positive results and S8's reflection and recommended approach for the next year demonstrate this.

‘Wow, what an amazing year! Thanks everyone for working so hard to achieve the significant results especially (S1) for staying up late so many nights to analyse our company performance history’ (S4 E2017). ‘Please take a look over at some of the changes I have made. This year will be a turn over and will bring us back into the game. Have confidence in our marketing schemes. We just really need to focus on our sales for the next couple of years. We have built a strong foundation’ (S8 E2012).

The classroom setting, although it appeared to be more structured, also provided opportunities for discussions to occur naturally. There was freedom for students to choose and organise activities within the three hour time allotment. Team One, as has been discussed previously, chose to have their class meetings outside the classroom in order to reflect away from others who were their game competitors. Other students also demonstrated that they took on their reflective tasks in their own way and in their own time in more informal settings (for example, S5, S6, S8 and S9). From the data identified in this study students in their particular settings had the opportunity to reflect and this reflection appeared to occur naturally and this, according to Candy, Harri-Augstein and Thomas (1985), is a design element necessary to encourage authentic learning. The literature also identifies the importance of reflection in the learning environment to allow learners to compare themselves with experts and other learners (Herrington et al., 2010). The simulation game provided reports to students so they could compare their performance with others. The game did not, however, provide the opportunity for students to compare themselves with experts. The game could have been designed to include information in the reports not only on student performances benchmarked against other students; that is, the reports could have provided an additional comparison showcasing decisions an expert may have made in that particular year and how they would have performed.

## **4.5 Opportunities for coaching and scaffolding and social and contextual support**

The learning environment provided the opportunity for the facilitator and more abled learners to be able to assist with coaching and scaffolding, a design characteristic stated as a requirement to encourage authentic learning (Herrington et al., 2010; Karagiorgi & Symeou, 2005). Students in this study had the opportunity to coach their fellow students in the formal learning settings (the email forums and in-class forums) and informal settings including face-to-face off campus and on campus. The facilitator also had the opportunity to coach and provide scaffolding in these formal settings. A discussion of the research in relation to coaching and scaffolding and authentic learning will be presented in Chapter 7.

The literature has identified the importance of designing learning environments that provide the learner with social and contextual support to provide authentic learning opportunities (Jonassen et al., 1998). The facilitator and students in their respective collaborative environments (formally and informally) were available to support others with both social and contextual support. The facilitator in his capacity as coach and scaffolder could support students' social competence and self-esteem. Social competence is the ability of individuals to establish and maintain collaborative interpersonal relations (Kihlstrom & Cantor, 2000) and self-esteem relates to a person's feelings of adequacy and competence (Komarraju & Karau, 2008), a factor influencing one's motivation. In other words, the facilitator in this learning environment had the capacity to encourage students to establish and maintain involvement in the collaborative environments and enhance learners' feelings of adequacy and competence in the learning environment. Both will be discussed in Chapter 7. The facilitator in his capacity could also provide contextual support by providing expert advice in relation to marketing decisions and strategies. This contextual support can enhance a learner's cognitive competence. Cognitive competence is the ability of individuals to seek knowledge assets in contexts that are diverse and the ability to transfer, adapt, combine and develop them further (Angehm, 2006). How much support should be provided to learners was something the facilitator struggled to get right, and will be discussed in Chapter 7. The point is that this learning environment provided opportunities for the facilitator to support students socially and contextually. Students had the capacity to support one another in their collaborative environments, face-to-face and online (emails), both formally and informally. For example, S1 supported S2, S3 and S4 socially in an attempt to continue to motivate his

team to participate in the collaborative environment. In this learning environment more able learners were available to support less able students in the collaborative environments, providing contextual support, supporting them in relation to marketing analysis and strategic development activities (enhancing cognitive competence). S5 supported S6 in Team Two (for example, S6 Questionnaire Q24) and S1 supported S2, S3 and S4 (for example, S1E2013).

#### **4.6 Authentic assessment design**

The data in this research showed (from student conversations in Focus Groups One and Two and observations of utterances in the email forums and in-class discussions) that the email and decision making tasks appeared to be realistic, practical and challenging assessments. There was discussion about some aspects of these tasks (emails and decision making) that indicated students did not perceive all aspects of these as authentic. Consequently, although the assessment tasks generally appeared to meet what the literature identified as important design elements for authentic learning, these aspects detract somewhat from this. For example, the asynchronous nature of the email forums, and the perception of some students at times that the decision making activity was a number crunching exercise, suggested these assessments did not provide a seamless integration with the authentic environment, a characteristic the literature states should exist in an authentic learning environment (Herrington et al., 2010; Reeves & Okey, 1996; Young, 1993, 1995); nor did they support other authentic design requirements identified in the literature that the assessments involve connectedness and transfer to the world beyond the classroom (Newmann & Archbald, 1992; Newmann & Wehlage, 1993).

The assessment tasks did meet other design requirements: for example, students needing to spend significant time and effort collaborating with others (Linn et al., 1991; Reeves, 2000), although Chapter 6 will show this was not fully implemented. These assessment tasks did show authentic qualities as described in the literature. These assessment tasks included the production of knowledge rather than reproduction (Newmann & Archbald, 1992), complex, ill-structured challenges (Linn et al., 1991; Torrance, 1995; Wiggins, 1990, 1993; Winn, 1993), multiple forms of evidence to measure student performance (Reeves, 2006), requiring students to not only make marketing decisions but to also articulate why they did so in the email forums, and producing a wide range of active responses (Reeves, 2000) in both the decision making and email forum tasks.

There was other evidence captured in this research study showing students' disengagement from the assessment activity: for example, poor contributions from S3, S6, S11 and S12's in the email forums. Students were aware these contributions to email forums were part of their graded assessment; they chose, however, not to participate much or at all. There was not enough evidence to provide an insight into students' thoughts about the assessment activity and whether they perceived it as authentic. S3 raised his dislike that grades were attached to the simulation game results namely, that the team with the highest cumulative profit at the end of the ten week exercise reaped the highest grade and other teams coming in second, third and so on received lesser grades. This dislike may have affected S3's perception of this assessment as authentic although not enough data was captured to confirm this.

#### **4.7 Conclusion: Authentic design**

The literature identified ten design principles that need to be considered in the development of authentic learning environments. These were (i) authentic contexts, (ii) authentic tasks, (iii) opportunities to reflect, (iv) opportunities to articulate, (v) authentic assessments, (vi) opportunities to collaborate, (vii) social and contextual support (viii) coaching and scaffolding, (ix) tools to solve tasks and, (x) the provision of information in a timely manner.

This chapter presented student perceptions and the researcher's observations as to the authenticity of the learning environment based on the above ten design principles. The simulation game's design elements relate specifically to the authenticity of the tasks, the visual elements, the content and the instructional resources. The data supports the notion that elements of the game's design were embedded in authentic contexts while others elements appeared to inhibit this authenticity.

The collaborative environment's design appeared to affect the authenticity of the game's tasks, that is, the decision making tasks required prior to each simulation period. Although appearing to encourage collaboration and engagement in this activity, there were some elements of this environment (discussion forums) that the data suggests reduced the authenticity of the learning experience. Student utterances in these forums demonstrated that they took the collaborative environment seriously and took ownership of the situation. The utterances showed that students were having real world experiences, trying to solve real world problems. The data in this research study also suggests the email forums may have inhibited students' authentic learning experiences. The waiting times had some impact on the

authenticity of the decision making tasks and less than half of the discussion led emails received responses. This does not fit in with Squires's (1999) concept of contextual authenticity. There appeared to be a disconnect between the context that was presented in the game (email forums) and real life. This was not in line with what the literature states should happen for authentic learning design (Bennett et al., 2002; Cunningham et al., 1993; Karagiorgi & Symeou, 2005). The data suggests the design of this aspect of the learning environment was inadequate to provide learners with authentic learning opportunities.

As well as the collaborative environment appearing to have some design deficiencies, the design around the decision making task appeared to need some adjustment. The perception by some students that they could get away with number crunching demonstrated a disassociation between this activity and the real world. The duration of time between each decision was perceived by some students to be too short. The decision making task appeared to meet other design requirements for authentic learning, in that they involved ill-defined complex tasks (Herrington et al., 2010), appeared to have real world relevance (Herrington et al., 2010), integrated tasks across subject areas (Herrington et al., 2010), provided learners with related experiences (Jonassen et al., 1998; Meyers et al., 2008) and involved learners in the decision making process over a sustained period of time (Herrington et al., 2010).

The game's visual elements presented to students in the simulation game did not appear to engage students in this learning environment: the data suggests the game's appearance actually annoyed and agitated students at times. This appeared to distract students and may have interfered with the authenticity of the learning environment although data was not captured to draw such a conclusion. The game's design could also have been enhanced had it included an image of the product students were involved in selling, as S1's comments suggested. The game, according to the data, could have been more authentic had it been designed to include qualitative information; this omission suggested students were provided with a simplified version of the real world, something the literature states should not happen if you are trying to develop an authentic learning environment (Grabinger, 1996; Spiro et al., 1987).

The game's scenario appeared to engage students in the learning environment as was evident in the email forums. Student email conversations appeared both to embrace the game's storyline and to be embedded in authentic contexts. As well as appearing to embrace the game's

scenario the data provided evidence of students extending the game's scenario. The content of some of these conversations identified in the email forums show these to be real-to-life situations and appear to add to the authenticity of this design aspect of the game. Other email entries showed student-constructed scenarios that were unrealistic and these appeared to detract from the authenticity of the game. Some students did not appear to embrace the game's scenario, they did not seem to think as marketers, instead they perceived they could get away with number crunching; this demonstrated a disassociation between the scenario and the real world. The inconsistent description of the game's story-line in the game's supporting resources (for example the PowerPoint presentation, player's manual and introductory email to students) may have confused students and created a further disconnect from the real world, although there was no data to support or reject this claim.

Students articulated their feeling about the game's player resources. Some portrayed these as authentic-like characteristics: for example, S5 and others appeared to perceive these as disconnected from authentic contexts: for example, S2 and S3. The learning environment appeared to satisfy other authentic design principles identified in the literature: providing tools to solve tasks and providing information to learners in a timely manner; providing opportunities for reflection and articulation in the collaborative environment and providing tools to support collaboration. The game also provided the opportunity for students to support other students with coaching and the facilitator to provide both coaching and scaffolding, including the provision of social and contextual support. The game's collaborative environment provided opportunities for learners to engage in activities such as collaboration, reflection, articulation and coaching. There were design elements in this environment that reduced the authenticity of these activities and the learning experience overall, which will be discussed in Chapter 6.

Students were required to engage in two assessment tasks: email contributions in the email forums and inputting decisions into the simulation game. There was evidence that elements of these aligned with what the literature recommends as design requirements for authentic learning. For example, the assessments demonstrated the production of knowledge rather than reproduction was occurring, the assessments involved multiple forms of evidence to measure student performance and these assessments involved significant time and effort collaborating with others. It needs noting, however, as will be discussed in Chapter 6 that not all students contributed significantly.

Other evidence from this research identified that there were other elements in the assessment tasks that did not appear to meet the literature's authentic design requirements. The asynchronous nature of the email forums, for example, appeared to detract from student engagement in the email activity as did the perception by some students that the decision making activity (also an assessment activity) appeared to be a number crunching exercise. Both examples suggest the design of the learning environment and, in this case, the assessment tasks needed to improve to provide students with authentic learning experiences. The literature states the assessments need to provide a seamless integration with the real world (Herrington et al., 2010; Reeves & Okey, 1996; Young, 1993, 1995).

The findings in this chapter help to answer research question 1: How does a marketing simulation game support or inhibit TAFE marketing students' authentic learning? Design elements in this learning environment have been shown to contribute to marketing students' authentic learning experiences and other elements appear to have inhibited these.

**Elements of the game tasks supported authentic learning.** i) The email forum and in-class team meetings provided opportunities for authentic conversations. ii) The decision making task satisfied authentic design requirements identified in the literature for authentic tasks. iii) The two tasks provided authentic assessments. The two tasks contributed to students' graded assessment, these displayed authentic qualities as identified in the literature as important for authentic assessments.

**Elements of games tasks inhibited authentic learning.** i) The asynchronous nature of the email forums inhibited students' authentic learning. ii) The assessment design inhibited authentic learning. The design faults identified in the assessment tasks (asynchronous nature of the email forums and perception by some that the decision making task was a number crunching activity) inhibited its authenticity.

**Design elements of the game supported authentic learning.** i) The advice and reports provided by the game were real-to-life and appeared to be authentic meeting the design principles identified in the literature. ii) Market research and help desk support appeared to be embedded in authentic contexts. iii) The game's scenario was perceived by most students as authentic.



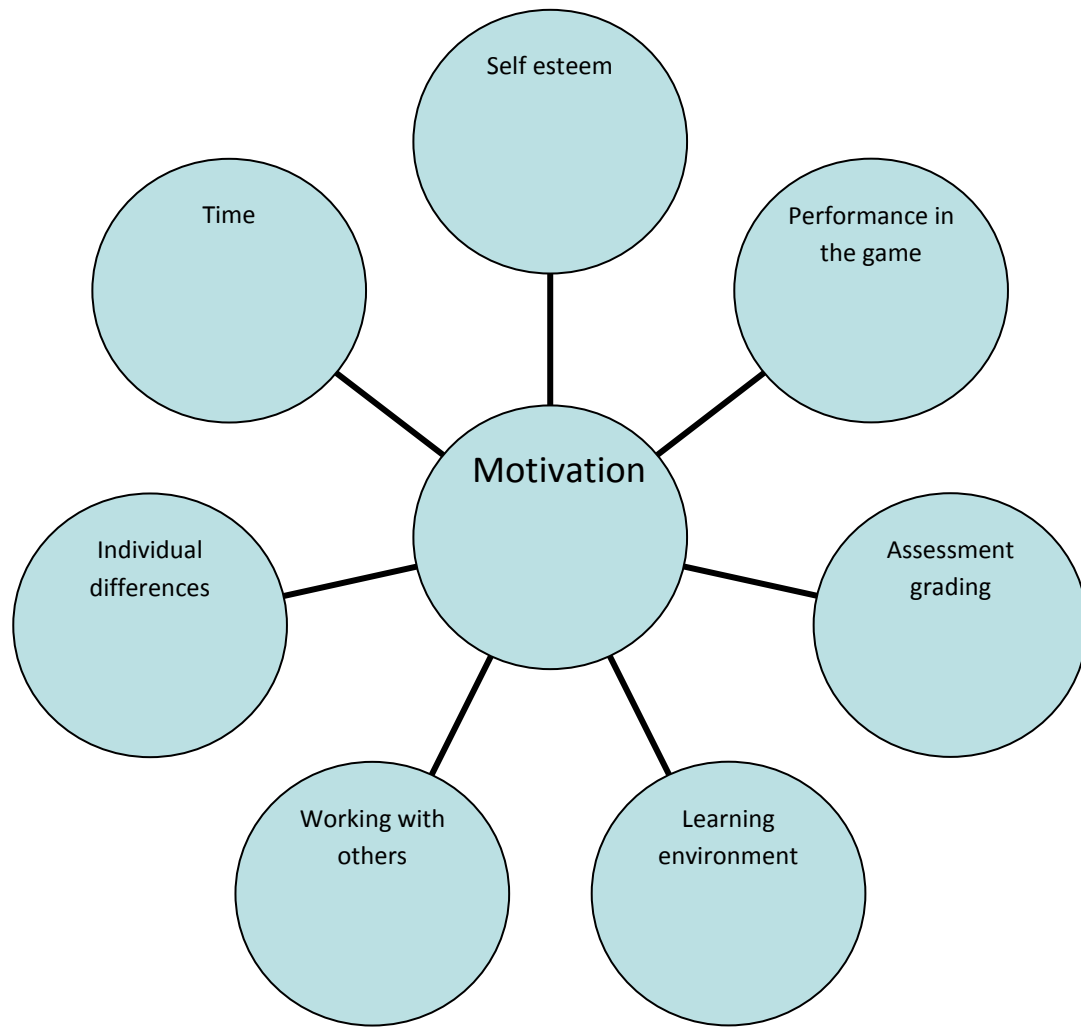
**Design elements of the game inhibited authentic learning.** i) Students' poor perceptions of the game's engaging qualities; the game's scenario and technical aspects inhibited authentic learning. ii) Problems with the game's content inhibited authentic learning. For example the omission of qualitative information provided students with only part of the picture according to the literature this omission limits authentic learning.

**The learning environment design supported authentic learning.** The learning environment's design satisfied most design characteristics identified in the literature as important for authentic learning. The learning environment provided tools to solve tasks, provided students with collaborative tools to allow them to articulate and reflect, opportunities for coaching and scaffolding, the provision of social and contextual support and provided information students needed in a timely manner.

The findings in this chapter have also identified the need for some intervention on the part of the facilitator and students themselves to strengthen the collaborative nature of the learning environment to enhance the game's authenticity. These aspects will be discussed in Chapter 6 and will contribute to answering the second research question in this research study.

## **Chapter 5. Motivation and Authentic Learning**

The origins and strengths of a participant's motivation can encourage or inhibit learning in an authentic learning environment such as a simulation game (Herrington et al., 2010). In this research study, seven factors were identified that had an impact on student motivation in the simulation game environment (see Figure 10): self-esteem, performance in the game, assessment grading, the learning environment, working with others, individual differences and time. This chapter will provide some insight into motivational factors that encouraged or inhibited students' authentic learning experiences in this marketing simulation game. This chapter, Chapter 6 and 7 will address the second research question in this study: What factors influence student authentic learning while participating in a marketing simulation game? Chapter 6 will examine the extent to which collaboration influenced student authentic learning while participating in the marketing simulation game. Chapter 7 will discuss the influence scaffolding had on students' authentic learning experiences.



**Figure 10 Factors impacting on student motivation**

Two tables have been created to show the influence motivational factors identified in this research study had on authentic learning. The tables are made up of the seven motivational factors and the five authentic learning characteristics identified in the literature review. In both tables, individual differences have been subdivided into motivational styles and mature age learners. Table 4 identifies the impact of strong motivational factors on authentic learning and Table 5 identifies the impact of weak motivational factors on authentic learning. The plus (+) symbol denotes the motivational factor as enabling a particular authentic learning characteristic, the minus (-) symbol denotes the motivational factor as inhibiting it. Where there was insufficient data no symbol was included. A discussion of each motivational factor and its impact on authentic learning will take place in the respective sections of this chapter.

**Table 4 Strong motivational factors and authentic learning**

<b>Authentic learning characteristics</b>					
<b>Motivational Factors</b>	Authentic tasks	Authentic problems	Metacognition	Student-directed learning	Learning with others
Self-esteem	+	+	+	+	+
Performance	+	+	+	+	+
Assessment grading					
The learning environment	+	+	+	+	+
Working with others					
Time	+	+		+	+
Individual differences					
Motivational styles	+	+	+	+	+
Mature age	+	+	+	+	+

**Table 5 Weak motivational factors and authentic learning**

<b>Authentic learning characteristics</b>					
<b>Motivational Factors</b>	Authentic tasks	Authentic problems	Metacognition	Student-directed learning	Learning with others
Self-esteem	(-)	(-)	+	(-)	(-)
Performance	+	+	+		+
Assessment grading	(-)	(-)			
The learning environment	(-)	(-)			(-)
Working with others					(-)
Time					
Individual differences					
Motivational styles	(-)	(-)	(-)	(-)	(-)
Mature age					

## 5.1 Self esteem

As discussed in Section 2.4, self-esteem is a factor that can influence a participant's motivation in a computer game environment. Self-esteem relates to a person's feelings of adequacy and competence (Komarraju & Karau, 2008). Self-esteem influenced some students' ability to engage with the game and this limited their ability to embrace the authentic learning experiences the game offered. S1, S2 and S4 from Team One described their feelings of inadequacy early on in the game. Inadequacy was felt in relation to their struggle to understand the game itself and their belief that they lacked sufficient marketing knowledge going into the game. S1 described how helpless he felt early on in this marketing simulation environment, feeling he did not have any control when he commenced playing the game.

I went into it a bit blind and overwhelmed (S1FG1).

He described how he tried to read the player manual prior to the game's commencement but found this to be a difficult exercise, comparing it to trying to understand Windows 2007 by reading the manual without using it (S1FG1). He describes his early encounter with the game which highlights his lack of control and feeling of inadequacy.

I feel like I'm flying along, I feel like I'm in a pinball machine just looking for the hole and hoping I will eventually find it, if I hit that flipper I'll bounce off that wall and I will be able to find the credit points (S1FG1 ).

S2 commented about her early experience with the game appears to suggest a low level of competence.

I don't understand it (the game) (S2FG1).

S4 expressed her frustration and confusion in the first half of the simulation exercise.

Once you get stuck into the thing, log in, you need to really look and analyse what is happening, there are so many different areas, so many, and then you get stuck and you thing we should do this we should focus on one or two things (S4FG1).

The second area of concern for S1, S2 and S4 was their belief that they lacked sufficient marketing knowledge going into the game. S1 made the following comment in Focus Group One

We all missed out on the first year [referring to three out of the four team members, S1, S2 and S4 from Team One], the Cert IV in that sense I feel I didn't quite understand enough going into the game (S1FG1).

S2 stated,

Not having the previous year I struggled with it (S2FG2).

This is supported by Garris, Ahlers and Driskell (2002) who state "If there is too high a level of discrepancy between our existing knowledge and new information, information may be too confusing or bewildering to incorporate" (p. 450).

The low level of self-esteem these students experienced inhibited their ability to embrace the authentic tasks and problems the game provided. The literature on authentic learning characteristics stated participants should be involved in authentic tasks that include taking on the role of a professional (Rule, 2006; Windham, 2007) and authentic problems that involve inquiry (Newmann, 1996). Students at this time did not show they embraced these. The literature states there is a significant shift in learner and teacher involvement in authentic learning situations: the instructor guides without strict guidelines or restrictions (Windham, 2007) and there is student-directed learning (Rule, 2006). These students acted more like traditional students relying on the teacher as a teacher rather than a facilitator or mentor as Rule (2006) states should happen. For authentic learning to take place, participants need to learn with others (Kruger et al., 2001; Rule, 2006; Windham, 2007). Students' low level of self-esteem inhibited these authentic characteristics from occurring.

It is interesting that, despite all of these inhibitors to authentic learning experiences, these students did display one authentic learning characteristic, that of metacognition. Although struggling early on, students described reflecting on their learning and their ability to learn, what Schraw and Moshman (1995) identify as knowledge of cognition. For example:

I feel I didn't understand enough going into the game (S2FG1).

I don't understand it (the game) (S2FG1).

Below S4 shows she was involved in a particular type of metacognition known as regulation of cognition (Schraw & Moshman, 1995):

There are so many different areas, so many, and then you get stuck and you think we should do this, we should focus on one or two things (S4FG1).

S4, although confused, was thinking about planning and regulating her cognition.

S1, S2 and S4's self-esteem did grow as they gained more experience in the simulation environment; even the day after the first focus group, S1, S2 and S4 had a very positive encounter with the game and appeared to have gained in confidence.

Yesterday after your focus group S4, S2 and myself got together and made some decisions and I applied them and a few other little tweaks according to the manual. We had a very positive outcome and we are happy with the results (S1 E2016).

Further on in his email, S1 comments on his changed perception of the game.

So in sending you this, I am saying that I enjoyed doing what I did on the game last night and feel far less negative about the game than I did yesterday (S1 E2016).

S2 had reservations about the game at the start but in simulation period 2016 she shows she has gained in confidence and has a very good understanding of the game and marketing concepts.

As discussed, we need to increase our advertising as this has a direct impact on our market awareness, which as we know isn't that great for our sports model - 'jogalong' (0.16). I have mentioned before, and will do so again, that we need to increase our product specification on the sports model. It currently sits at 0.33 and we are all in agreement that our target market for the sports model are more concerned about the features on the product, with the price being a secondary concern. If we increase the specification then we should also increase the price - any suggestions? (S2 E2016).

S1 gained more confidence as the game progressed and mastered the mechanics of the game, no longer trapped in the so-called pinball machine. His 2013 email entry is evidence of this.

I have been going over a few of the reports and looking at the growth of the youth model. I really believe that we should concentrate a lot of marketing dollars for TFY on this model and the sports model. The youth model market is seeing excellent

growth and we need to have our product achieve more of the market share in this market (S1E2013b).

S4 developed a better understanding of the marketing concepts and more confidence playing the game itself. In her 2017 email entry, for example, she appears positive and confident with her team's prospects.

We are doing something right with the Sonic1 & Techmologic. Take a look at the Industry Benchmark Report, notice the correlation between the firms' sales revenue and research purchase?? Let's invest more in market research in areas of product awareness and I am positive the return will be rewarding (S4 E2017).

S1, S2 and S4's feelings of adequacy and competence within this simulation environment appeared to grow as time moved on. They had the opportunity to learn more about the game and enhance their marketing knowledge while playing in the game (as one learning on the job would).

In contrast to the low self-esteem felt by S1, S2 and S4 early in the game, S5 displayed a high level of self-esteem. In Focus Group Two, S5 continued to make reference to marketing logic when making decisions and understood this was the key contributor to his outstanding performances. S5 described his strong understanding of marketing theory and an ability to apply this directly into the game. His description of specific strategies used in the game showed he was very comfortable and confident playing the game; he even took on a mentoring role helping students both within and outside his team.

S1, S2 and S4's low self-esteem early in the game, their lack of confidence in the learning environment and preoccupation with their own feeling of inadequacy, made it difficult for them to focus on what the game had to offer, including the authentic learning experience. When they did gain confidence and improve their marketing knowledge, their self-esteem and motivation increased, providing the opportunity for them to engage with the learning environment and be receptive to authentic learning experiences the simulation provided, as S5 had done throughout the simulation exercise. The higher self-esteem showed students displaying all the characteristics identified in the literature as necessary for authentic learning. They were involved in authentic tasks, authentic problems, metacognition, displaying a significant shift in learner and teacher involvement (S5 taking on a mentoring



role and S1, S2 and S4 directing their own learning) and there was also evidence to show students (S1, S2 and S4) were now learning with others.

## **5.2 Performance and motivation**

Performance was a factor that had an impact on student motivation in the simulation game environment. It drove students to continue to engage in the learning environment and remain open to authentic learning experiences but in one case influencing a student to throw in the towel and disengage from these experiences. When an individual receives feedback from a computer game activity that indicates current performance does not meet goals they will try to reduce this discrepancy. If the individual is committed to achieving this goal this discrepancy will lead to an increased effort (Hofstede et al., 2010; Iyengar & Lepper, 2000). Students demonstrated their commitment, perseverance and drive to succeed in the many email entries made; a sample of students' emails has been included below.

S8 was driven to improve, evaluating his team's performance and suggesting strategies; he was optimistic about the future. He and his team could have easily given up the fight but S8 shows in this email he was willing to persevere.

We have had another appalling year. Our competitors are moving far away from us but are still in arms reach. We may have lost the battle but we haven't lost the war. The strategies we have implemented have not worked for the past year. I have taken a look over some of the strategies and tactics that you have suggested and have added some of the things I think need attention (S8 E2011).

S2 also demonstrated that she was motivated to move ahead and felt there was still time to improve.

Sales were really disappointing this year, but, I believe that we still have the time to turn this around (S2 E2016).

S6, S1, S4, S8 and S7 reflected on each of their team's performances in the following emails: they are optimistic and motivated to move ahead of the competition.

We have had the highest sales since 2008, not only showing a recovery but also an improvement, I believe we are on the right track and continue to focus on the marketing of our products (S6 E2011).

Of all the companies in our market we seem to be operating the most efficiently. All we need to do now is have our market share increase and keep our cost of doing business at a similar level and I think we will be on top in no time (S1 E2014).

Wow, what an amazing year! Thanks everyone for working so hard to achieve the significant results especially (S1) for staying up late so many nights to analyse our company performance history. In the previous year imp3 (Team One) was 2ND in net market contribution and our objection for this year is to be No. 1.

Let's invest more in market research in areas of product awareness and I am positive the return will be rewarding (S4 E2017).

Please take a look over at some of the changes I have made. This year will be a turn over and will bring us back into the game. Have confidence in our marketing schemes. We just really need to focus on our sales for the next couple of years. We have built a strong foundation (S8 E2012).

We have introduced a new TurboSun mp3 player targeted to the sport segment, we only have one competitor in this field and I believe we can conquer the market in terms of sports mp3 players. With our quality and design (S7E2013).

The reduction in price has a given us a smaller profit margin but I believe it will attract more customers and benefit DVZ in the sales department in the future? (S7 E2016).

Contrary to the commitment, perseverance and drive to succeed demonstrated in these sample emails, S3 gave up the fight when he felt there was no hope.

We were right into it when we were winning then when we started to drop off and we couldn't work out why we realised there was only 3 or 4 weeks to go there was not enough time to learn and experiment and we were like we're doomed. Exciting for you [referring to S5's team's performance] depressing for us you can watch us slowly going and watch you go up (S3FG2).

Washbush and Gosen (2001) state that surrendering in a simulation game may create a negative learning experience and disengagement from the learning environment.

Although S3 lost the drive to persevere, the researcher's analysis of all of the other students' email entries showed they were determined to fight on and not throw in the towel no matter how poorly they performed and how far behind they may have been to their competitors. This supports the literature that states individuals may be driven to succeed even if the feedback received from a simulation game is not favourable. When an individual receives feedback from a computer simulation game that indicates current performance does not meet specified goals, they may try to reduce this discrepancy. If the individual is committed to achieving this goal, this discrepancy will lead to an increased effort (Hofstede et al., 2010; Iyengar & Lepper, 2000).

S5, for example, was motivated by his team's performance: once he saw the fruits of his labour turn into something positive this gave him more drive to succeed.

We saw the window of opportunity the last three weeks was quite exciting. We're going to put in the final fight for the last week we're not going to give away the victory so easily I had to make sure we were focused and we just took it and we learned something (S5FG2).

Students also demonstrated an optimistic outlook and a drive to succeed when mistakes were made, they felt they could turn things around and appeared to have learned from this. This also supports the literature on performance discrepancies and the drive to succeed (Hofstede et al., 2010; Iyengar & Lepper, 2000). The email entries below show their motivation is strong and their experiences are real-to-life.

The previous years we did not include discount stores as a distribution channel and did not travel anywhere near as well as our competitors. However since the change, we have increased the availability of our products to our consumers and therefore now have better brand awareness (S7E2012).

The minor set back was due to careless pricing of products but has been corrected (S7E2014). The drop in price last year of Supercharg (sports mp3) was a terrible mistake. It has been increased back up to \$130.00 per unit from the low and non profitable price \$85.00 (S7E2014).

After looking at the market research, our products lack the technical specifications compared to our competitors. The styling is well above the competitors, but it does not justify the price being 10% higher (S8 E2015).

This research showed me that my product awareness increased substantially via television and radio advertising for the sonicyouth model, therefore i have allocated more of the spending towards these channels of advertising (S10 E2015).

The data shows these students were involved in authentic learning experiences, displaying all the characteristics of authentic learning identified in the literature. Their actions show they were actively participating in authentic tasks and involved in authentic problems. There was evidence of students being involved in metacognition, reflecting on their learning and what they needed to know (for example, S4 seeking more knowledge from the market research reports). Learning was student- directed and as they fought to do better or maintain their position in the game they showed they were learning with others (for example, S1, S2 and S4). S3, although giving up the fight, showed in this situation he was still reflecting on his learning, stating, for example:

There wasn't enough time to learn (S3FG2).

He was also involved in authentic tasks and problems, learning with others and involved in student-directed learning. So, although his motivation appeared to waver, like other more motivated students, he remained involved in authentic learning.

### **5.3 Assessment grading and student motivation**

Aligning grading to students' performance in the simulation game was a factor that had an impact on student motivation. Grading dampened the enthusiasm and motivation of some of the students but was also described as a motivating factor.

There were two assessment tasks that related to the simulation exercise: the weekly email forums and the weekly team decisions. At the end of the ten week (ten simulation years) period, the team with the highest cumulative profit and highest market share was awarded the highest mark; teams finishing in second, third place and so on were awarded grades relative to the best placed team. The team with the highest cumulative profit was not always the team with the highest market share, so more than one team had the opportunity to win in these

respective areas. It is the alignment of graded assessments to team performance that led to some students voicing their objection.

S1 and S2 believed there was a chance that other teams could get lucky and that rewarding such luck was not fair (S1 & S2 FG1); S2 thought that students who had completed the first year of the marketing program had an advantage over others who had not (S2FG1); S3 was of the opinion that teams that met outside class had an advantage over teams that did not (S3FG1); and S1, S2 and S3 objected that marks were determined by other people's actions (S1, S2 & S3 FG1) and (S3 Q27 Questionnaire).

A sample of some of these objections is presented below.

We were lucky at the wrong time and we are going to be marked accordingly (S1FG1). "They may be winging it" (S1FG1).

I say the chances are greater than 50% chance that they winged it (S3FG1).

Your marks are determined by other people's actions and that's not something I really enjoy it's not that we are doing anything wrong, it's that they are doing something that interferes with us" (S3FG1).

I have lost motivation because I know I can be affected by them (S1FG1).

There are two elements that have appeared to decrease student motivation. Students' perceptions that they had lost control over part of their learning and their perception that the assessment task did not appear authentic. The literature states that students' intrinsic motivation could be lowered if they are unable to control critical dimensions of their learning (Severiens & Ten Dam, 1994). It appears from statements made by S1 and S3 that they perceived they were not in control of their learning when faced with the assessment tasks and its grading. For example:

Your marks are determined by other people's actions (S3FG1).

I know I can be affected by them [referring to other students] (S1FG1).

They are doing something that interferes with us (S3FG1).

These students did not perceive the assessment task as embedded in authentic contexts. The notion of luck and being lucky did not sit well with them. For example:

We were lucky at the wrong time (S1FG1). They may be winging it (S1FG1).

These tasks did not appear to align with what the literature describes authentic tasks should be, for example providing students with the challenge, interest and motivation to learn (Meyers et al., 2008) and having real world relevance (Herrington et al., 2010; Meyers et al., 2008). Both elements (losing control and the poor perception of the assessment task) reduced S1 and S3's motivation and in this situation inhibited their participation in authentic tasks and involvement in authentic problems.

S2 made the point that the grading was a motivating factor.

If you take the grades off people won't take the game so seriously. If they know there is something at the end of it...it is a motivating factor (S2FG2).

This so-called carrot may increase a person's motivational style according to Ryan and Deci's (2000) motivational model: there was no data captured to show this occurred nor that it had any influence on authentic learning. On the contrary, students knew they were being assessed on their email contributions; it is interesting that not all students participated regularly in the weekly email forums and that the assessment and grading of this activity did little to motivate some to perform (for example, S3, S6 and S9).

Although a limited amount of data was captured about students' perceptions of grading and the impact it had on their motivation, the data suggests it has both a positive and negative influence on student motivation, although the negative influences appeared to inhibit authentic learning. There is not enough evidence to support the notion that the positive influences on motivation had any effect on students' authentic learning.

## **5.4 The learning environment and student motivation**

The learning environment itself appeared to encourage and inhibit students' motivation. According to Honebein, Duffy and Fishman (2001), students have to perceive the learning environment as authentic for motivational benefits to arise and contexts need to be meaningful to enhance a participant's motivation (Garris, Ahlers, & Driskell, 2002). Chapter 4 identified the simulation game's design elements and students' perceptions of these. The data supported the notion that elements of the game's design were embedded in authentic contexts and others appeared to inhibit this authenticity.

Students who responded favourably to the game's learning environment (as discussed in Chapter 4) were motivated and open to the game's authentic learning opportunities. Table 4 shows this positive outlook encouraged students to engage in authentic tasks, authentic problems, metacognition, self-directed learning and learning with others. Those that perceived game elements as not embedded in authentic contexts did not embrace the game's authentic tasks and problems, nor were they encouraged to collaborate and learn with others (see Table 5).

## **5.5 Working with others and student motivation**

A learner's preference to work in a group or work alone can affect their experience with a game (Hogle, 1996). Having to work with others, the research suggests, was a de-motivator for a number of participants in the simulation game, for example:

I found the group really quite difficult (S1FG1).

Our team was too big, too many personalities, didn't enjoy teamwork (S2 Questionnaire Q24).

If you do it individually, it's your action and you pay for it you don't have to justify it to anyone in your group (S4FG1).

I was looking forward to be in a team but I have been disappointed (S2FG1).

I didn't want anyone in my group because I don't want to work with anyone (S2FG1).

S4 had her own difficulties working with her team members; she approached the facilitator during the semester to discuss some issues she was having working with team member S2. The main problem was a personality clash that existed between the two students; S4 agreed to continue to work in the team and to tolerate the friction that existed, although this must have had an impact on her motivation working for the team. These perceptions and difficulties may have inhibited students' learning with others, a requirement necessary for authentic learning (Kruger et al., 2001; Rule, 2006; Windham, 2007).

## **5.6 Individual differences and student motivation**

As outlined in Ryan and Deci's (2000) motivation model, not all students go into a learning environment with the same level of motivation. In this section, data relating to individual differences and the impact this had on student motivation and authentic learning will be discussed.

Some students learn from games while others do not (Hogle, 1996, p. 14).

Individuals have learning preferences; if the learner is not comfortable in a particular learning environment this will have an impact on their learning (Hogle, 1996).

### **5.6.1 Perceptions of simulation games and motivation**

S2 and S3 came into the game with preconceived ideas of computer games.

I play a lot of games, solo games you play on your own they all have the same concept" (S3FG1).

For me it is new I've never played any virtual games I'm too old for it (S2FG1).

Their perceptions of these types of games may have reduced their enthusiasm and motivation to play in the simulation environment, although the researcher did not obtain any direct evidence to support this.

### **5.6.2 Marketing knowledge**

S1, S2 and S4 missed the first year of the marketing program and went into the simulation game with less marketing knowledge than other participants. This contributed to lowering their self-esteem in the learning environment and, as a consequence, their motivation level.

S1, S2 and S4 felt they lacked sufficient marketing knowledge going into the game. S1 made the following comment in Focus Group One

We all missed out on the first year [referring to three out of the four team members, S1, S2 and S4 from Team One], the Cert IV in that sense I feel I didn't quite understand enough going into the game (S1FG1).



S2 stated,

Not having the previous year I struggled with it (S2FG2).

### **5.6.3 Motivation styles**

Ryan and Deci's (2000) taxonomy of human motivation identified three styles of motivation: amotivation, extrinsic and intrinsic motivation; these differences in motivational styles could lead students to be either willing or unwilling learners (Komarraju & Karau, 2008). The research suggests student motivation styles varied and some strengthened their motivation as the simulation game progressed, moving along Ryan and Deci's (2000) motivation continuum.

S1 and S5 displayed motivation styles that appeared to reflect autonomous extrinsic motivation and some elements of intrinsic motivation. There was evidence of S5's intrinsic style, in that his focus appeared to be more about learning and improving; although conscious of the reward, his comments did not appear to be preoccupied with this. A good representation of what appeared to drive S5 was collected.

I had to make sure we were focused and we just took it and we learned something.

We would see what we did wrong and we would take steps to improve the situation in the simulation.

We have done something wrong so we would like to exchange information and learn how to better improve our ability to play the game.

It's not so much we got the worst result at least I knew what I was doing the person is learning the concepts as they should be (S5FG2).

S5's motivation style shows he was involved in metacognition, an activity the literature describes as important for authentic learning, (Kruger et al., 2001; Newmann, 1996; Rule, 2006).

The following email is a good example of S1's strong desire to succeed in the simulation exercise; the data suggests his motivation style was an autonomous extrinsic style which also demonstrates some elements of an intrinsic motivation style.

I have been working very hard at this course as well as at least 35 hrs at work, trying to arrange a wedding, my regular business is getting busier again and in between going to funerals and customers and whatever, I am dedicating the time (to the slight detriment to my relationship) to do the best I can at this course. I have achieved good results and I want to maintain them. I NEED to do well in this simulation not just a PASS . I couldn't accept a PASS. I would finish the course there and then! We need to get this simulation under control. I don't care if I have to do everything and everyone else sits back but I want to do well. It is a game but the whole objective of the Game is to learn from it. We need to apply things learned in class to the game. Sorry for going on and on but this simulation needs to be done and no one replying to me disappointed me as there was many many many hours of research and preparation on the work I sent you both and I don't want to be rushing to finish it (S1 E2013 to S4).

As well as showing his determination to do well in the game S1 also shows he is involved in metacognition preparing to regulate cognition. S1's motivation style moved over time from the far left of Ryan and Deci's (2000) extrinsic motivation continuum to the far right; his improved self-esteem contributed to this (refer to Section 5.1).

The data suggests S2, S4, S7 and S8 appeared to display a lower style of extrinsic motivation; they were not as self-driven as S1 and S5. These students were engaging in the simulation game, including the email forums, as a means to an end; the end was an external reward, a graded mark for their simulation game performance and email forum contribution. S2 and S4 grew in confidence as the simulation progressed; the data suggests they moved from a low extrinsic motivation style along Ryan and Deci's (2000) motivation continuum to a stronger extrinsic style, although not as strong as S1's eventual style.

S6 and S9's motivation style reflected what Ryan and Deci (2000) described as amotivation. An individual displaying amotivation lacks the intention to act; it results from not valuing an activity, not feeling competent to undertake the activity or not believing the desired outcome will eventuate (Ryan & Deci, 2000). Neither students engaged much in the email forums nor did they engage much in the scheduled team meetings. Both participants lacked an intention to act. Referring to Figure 4.1, S6 only participated in the email forum twice for the entire nine weeks (nine simulation years); S9 only contributed four emails in three out of nine

simulation years. In relation to interacting with other team members, Figure 4.3 shows S6 and made no interactions and S9 only three. Referring to Figure 4.4, the quality of S6's two emails were classified as low; one of S9's emails was of a medium quality and three were classified as low.

Both S6 and S9's lack of intention to act may have resulted from not valuing the email forum activity, not feeling competent to undertake this activity or both; it is difficult to draw any definite conclusion here. The data does not suggest that their lack of intent resulted from not believing their desired outcome would eventuate however. Throughout the simulation game their motivation style appeared to remain the same. S6 and S9's motivation style suggests they were not experiencing authentic learning. They did not appear to be engaged in authentic learning tasks and problems, nor did they demonstrate learning with others. Their learning did not appear to be self-directed and there was no evidence to support a view that they were involved in metacognition, although their lack of participation in the research study made this difficult to capture if it did.

Finally, S3's motivational style appeared to be at the lower end of Ryan and Deci's (2000) extrinsic motivation continuum. The data suggests he was more engaged than S6 and S9; although his interactions in the email forums were poor (making three postings only), he made comments in the focus groups that showed he was interested and had a positive outlook of aspects of the game (although critical of other aspects including game design, support and components of luck). For example:

It's not a bad idea of gaining a basic understanding of concepts.

I think I have learned the concept of a basic market place.

We were right into it (the game) when we were winning.

I enjoyed the game part but communication within our team was difficult at times.

(S3FG2)

Student motivational styles help our understanding of what enabled or inhibited authentic learning in this learning environment.

Tables 4 and 5 show the impact of students' motivational styles on authentic learning.

Students displaying positive motivation were open to participating in the authentic learning

tasks and the authentic problems the game provided; they demonstrated their involvement in student-directed learning and their involvement in learning with others. Evidence from their conversations in emails and focus groups show they were involved in metacognition (for example, S1 and S5). Students displaying low motivation (for example, S6 and S9) the data suggests inhibited their participation in authentic learning; they did not show their involvement in authentic tasks, authentic problems, metacognition, student-directed learning or learning with others (see Table 5).

#### **5.6.4 Gender and age**

Although the researcher did not consciously seek to capture data relating to gender, age and motivation the literature below suggests these factors should not be ignored.

##### **Age**

Some studies suggest that mature age students take on a deeper approach to learning (Richardson, 1995; Sadler-Smith, 1996) and a greater tendency towards reflection and observation (Truluck & Courtenay, 1999). Other studies have found that younger students were more likely to tolerate ambiguity than older students and more likely to see themselves involved in groups (Gosenpud, 1982).

In this study, there were three mature age students and nine young students (see Table 6). S1, S2 and S4 appeared to take on the game and their responsibilities within the game far more seriously than the younger aged students (including team meetings, class attendance, balancing work and leisure). They also appeared to adopt a deeper approach to learning than the younger students: for example, their analysis of their particular situation was more in depth as displayed in their scheduled meetings and their commitment to their tasks appeared more thorough. They did not tolerate ambiguity, as previously highlighted in the self-esteem section, and appeared to engage in more reflection and observation than their younger counterparts. They also appeared to be more engaged in authentic tasks and their problems, and to be more open to learn with others, overall appearing to be more open to authentic learning opportunities. They were critical of the younger participants, in particular Team Two and Three, whom they perceived as undermining the authenticity of the game at times, for example through their poor participation in team meeting tasks.

**Table 6 Age distribution of participants**

<b>&lt; 30 years</b>	<b>&gt; 30 years</b>
<b>S3, S5, S6, S7, S8, S9, S10</b>	<b>S1, S2, S4</b>

## **Gender**

Research studies relating to the impact of gender on learning styles have found that males have a greater preference for abstract concepts than females whilst females prefer concrete learning styles (Baxter, 1989; Kolb, 1984; Prosser, 1984; Severiens & Ten Dam, 1994). Similar findings were found in research conducted by Heffler (2001), research which led him to suggest that females preferred “a more experience based approach to learning, feeling-based judgments, people-oriented, concrete role-play simulation learning” (p. 314). Specifically relating to simulation games, Dempsey, Haynes, Lucassen and Casey (2002) found that females were three times more likely to state they were not confident about succeeding in a simulation compared to males. Garber and Clopton (2004) identified males as having high levels of confidence and as focused on competitive and performance aspects compared to their female participants. Garber and Clopton (2004) found females were more analytical when playing the simulation game whereas males were more intuitive. Other research has found that females perceive simulation games to be less valuable and engaging for learning compared to males (S. Anderson & Coffey, 2004) and females as having a lower tolerance for ambiguity (Garber & Clopton, 2004).

In this research there were nine male students and three female students participating in the simulation game (see Table 7). The research suggests the male students appeared to be more preoccupied with competitive and performance aspects of the game; this came out in the focus group discussions (FG2). The female students may have preferred a more people-oriented approach to learning as suggested in Heffler’s (2001) research; S2 and S4 preferred to have face-to-face meetings as opposed to online electronic email forums (FG1). One can conclude that there may be gender factors that had some impact on students’ motivation and learning although the data is limited here.

**Table 7 Number of male and female students by code**

<i>Males</i>	<i>Females</i>
<b>S1, S3, S5, S6, S8, S9, S10, S11, S12</b>	<b>S2, S4, S7</b>

### **5.7 Time and student motivation**

The concept of time was a factor that had an impact on students' motivation. The perception of not having enough time appeared to de-motivate S3; S2 and S5, on the other hand, perceived time to be a motivating factor. The concept of time encouraged students to reflect on their situation and their learning (metacognition).

For the first 6 weeks we were doing all right we were just above the rest and then these guys started to really learn and shoot up and we were left with 4 weeks and there isn't enough time to really implement or learn any more (S3FG2).

We were right into it when we were winning then when we started to drop off and we couldn't work out why we realised there was only 3 or 4 weeks to go there wasn't enough time to learn and experiment and we were like we're doomed (S3FG2).

Sales were really disappointing this year, but, I believe that we still have the time to turn this around (S2 E2016).

It was the other way around for me we saw the window of opportunity the last three weeks was quite exciting (S5FG2).

Towards the end yeah everything was at stake so you had limited amount of time to come out on top at the end I think that was a big driver (S5FG2).

### **5.8 Conclusion: Motivation results and discussion**

Herrington, Reeves and Oliver (2010) state that the origins and strengths of a participant's motivation can encourage or inhibit learning in an authentic learning environment such as a simulation game. Seven motivational factors were identified in this research study that influenced authentic learning; self-esteem, performance in the game, assessment grading, the

learning environment, working with others, individual differences and time. The data suggests that motivational factors influenced student involvement in the five authentic learning areas described in the literature: authentic tasks, authentic problems, metacognition, student- directed learning and learning with others. Positive motivational factors identified in the research (see Table 4) showed a positive relationship between motivation and each authentic learning characteristic. When motivation appeared to be low this appeared to inhibit authentic learning experiences. Despite low motivation, these students demonstrated that they were involved in metacognition at times, one of the required activities for authentic learning. (Herrington et al., 2010; Kruger et al., 2001; Newmann, 1996; Rule, 2006).

For some students, motivation was not strong at all at the start of the game. The research identified some students experienced low self-esteem and, in reference to Ryan and Deci's (2000) motivation theory, low motivation styles. These two factors inhibited these students' ability to embrace the authentic learning opportunities available in the game. Inhibiting their participation in authentic tasks and authentic problems, restricting both their ability to be student- driven learners and their involvement in learning with others. Despite this, these students did experience metacognition: they were aware of their learning and inadequacies at that time. For example S2 commented in Focus Group One 'I feel I didn't understand enough going into the game' (S2FG1), and S2 commented in Focus Group One 'I don't understand it' (the game) (S2FG1). As the game progressed, these students became open to authentic learning opportunities and, as displayed in Table 4, were involved in authentic learning, exhibiting all the characteristics required for authentic learning.

Students' experiences in the game included feedback on their performance. The literature identified participants in games will be driven to succeed even if their fortunes are not always favourable (Hofstede et al., 2010; Iyengar & Lepper, 2000). The data in this study showed that this was occurring for most students. With the exception of S3, the data showed no matter how poorly students were performing in the game they continued to display strong motivation. Table 4 shows this motivational factor (performance in the game) was a positive influence on learners' authentic learning experience. It is interesting that although S3's motivation was weakened by knowledge of his poor performance, he still demonstrated he was open to the authentic learning experience, he still demonstrated he was involved in authentic tasks, authentic problems, student-directed learning, learning with others and even metacognition, reflecting on his own learning.

S1, S2 and S3 had a poor perception of the graded assessments and learning environment elements (for example, the discussion forums and classroom settings) and this influenced their motivation and authentic learning experience. The data suggests these poor perceptions inhibited these students' involvement in authentic tasks and problems and, in relation to the learning environment only, inhibited students' ability to learn with others. Those students that perceived the learning environment favourably demonstrated an increased motivation that enabled their participation in authentic learning (see Table 4).

The data provides some understanding of what has enabled and what has inhibited particular authentic learning characteristics in this marketing simulation game. It also provides some insight into how authentic learning could be enhanced in learning environments such as these. Those individual motivational factors identified as detracting from authentic learning, namely self-esteem, motivational styles and poor perceptions of working in teams, could be encouraged and authentic learning opportunities enhanced if effective coaching and scaffolding were provided. The data also provides some insights into the learners' motivation in relation to their experience playing the game itself: namely, their perceptions of assessment grading, the learning environment and time, and their effects on authentic learning.



## **Chapter 6. Collaboration**

This chapter addresses the second research question in this research study; what factors influence student authentic learning while participating in a marketing simulation game? It will describe the collaborative environment and discuss factors that influenced collaboration and student authentic learning. Namely, the presence of ground rules for collaboration; activities supporting collaboration; the individual's level of resistance to working in groups; trusting others; and students' social and cognitive competence.

Opportunities for collaboration are important for authentic learning (Gee, 2007; Herrington et al., 2010). For collaboration to occur the following requirements were identified in the literature.

- opportunities to engage in discourse and social learning (Cronin, 1993; Donovan et al., 1999; Newmann, 1996; Rule, 2006)
- learning with others (Kruger et al., 2001)
- learning in groups (Herrington et al., 2010; Kruger et al., 2001)
- team collaboration (Callison & Lamb, 2004)
- appropriate communication platforms (Herrington et al., 2010)
- embedded in social practice (Schultz & Kim, 2012)
- interaction with peers and experts (McNeil, 2003)

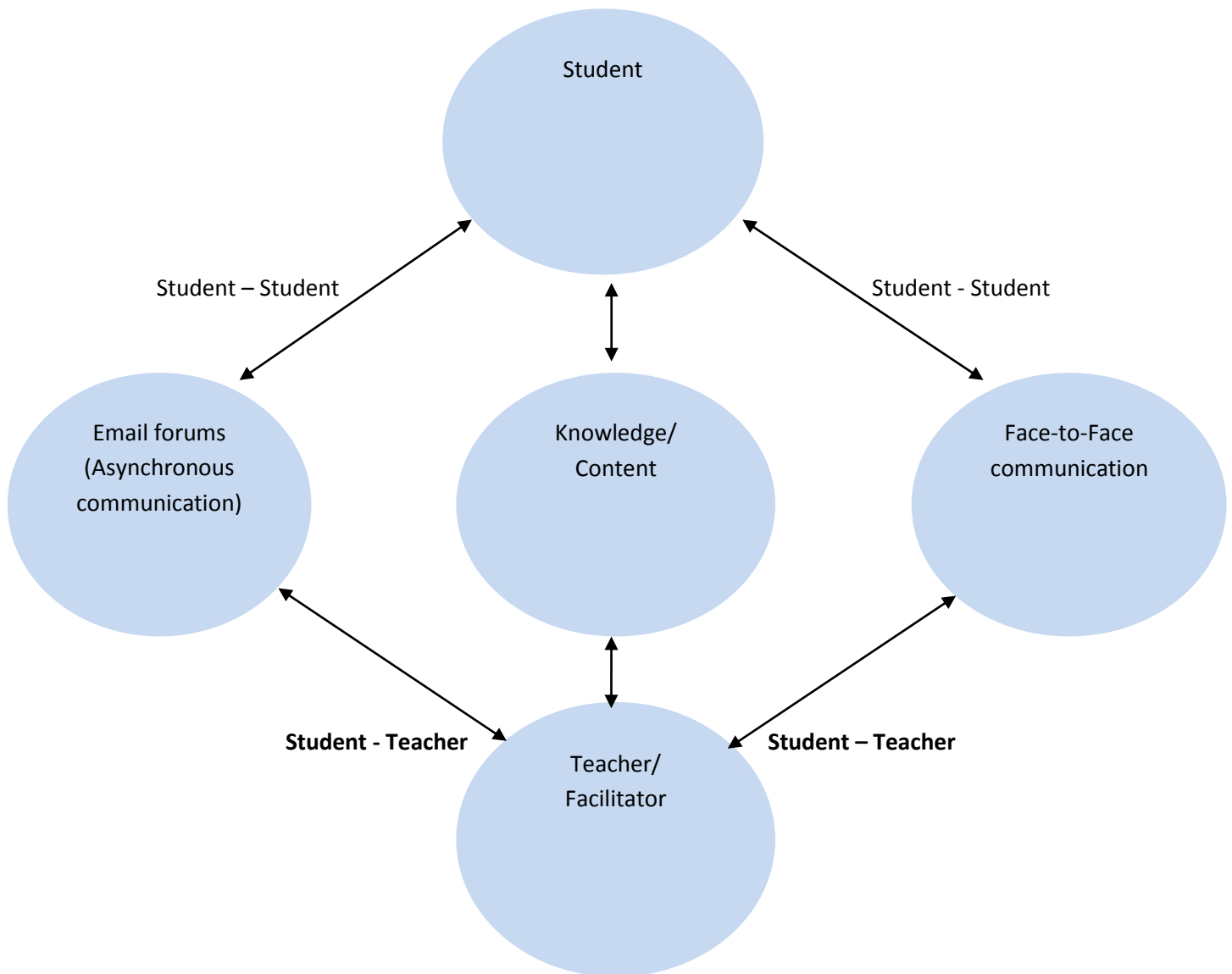
The factors identified in this research study influenced the extent to which these collaborative requirements occurred. The discussion in this chapter will identify some inhibited authentic learning opportunities while others encouraged these opportunities.

### **6.1 The learning environment and collaboration**

The simulation game provided a platform for participants to input their yearly marketing decisions during the week, they would then wait for the game to roll over to the next period to see the results. The game did not provide a collaborative feature or platform for students to engage in. The facilitator however introduced a collaborative feature to the simulation exercise comprising in-class team meetings (face-to-face) and email forums (online

asynchronous). The facilitator felt that without a collaborative feature included in the learning environment the game may become purely a number crunching exercise, potentially taking away from the authenticity of the exercise; the facilitator wanted students to not only show what decisions they were making but also articulate why.

Figure 11 identifies the collaborative feature included in this learning environment. Students had the opportunity to communicate with their facilitator and other students in face-to-face in-class meetings and via the online email forums. The facilitator was able to contribute theory and further instruction through interaction with students in the simulation class (that is, knowledge/content) while students had the opportunity to interact with one another and construct their own knowledge/content thereby potentially assisting the team and individual to progress and potentially improve in the game. As Vygotsky (1978) notes, dialogue with others provides the opportunity for students to construct their understanding and take them to the level of potential development.



**Source: Adapted from Anderson (2004)**

**Figure 11 Collaborative feature of the learning environment**

Students were required to attend seven theory classes leading up to the simulation and nine simulation classes. Figure 12 shows a comparison of student attendance in these classes. The data shows that S1, S3, S6, S7, S8, S9 and S10 attended more theory classes than simulation classes, and half of the students attended less than half of the scheduled simulation classes, (S6, S7, S9, S10, S11 and S12). The remaining students attended more than half of the simulation classes and the scheduled face-to-face class meetings. Students from Team Two, (S5 and S6) and Team Three, (S8 and S9) met regularly outside class scheduling their own

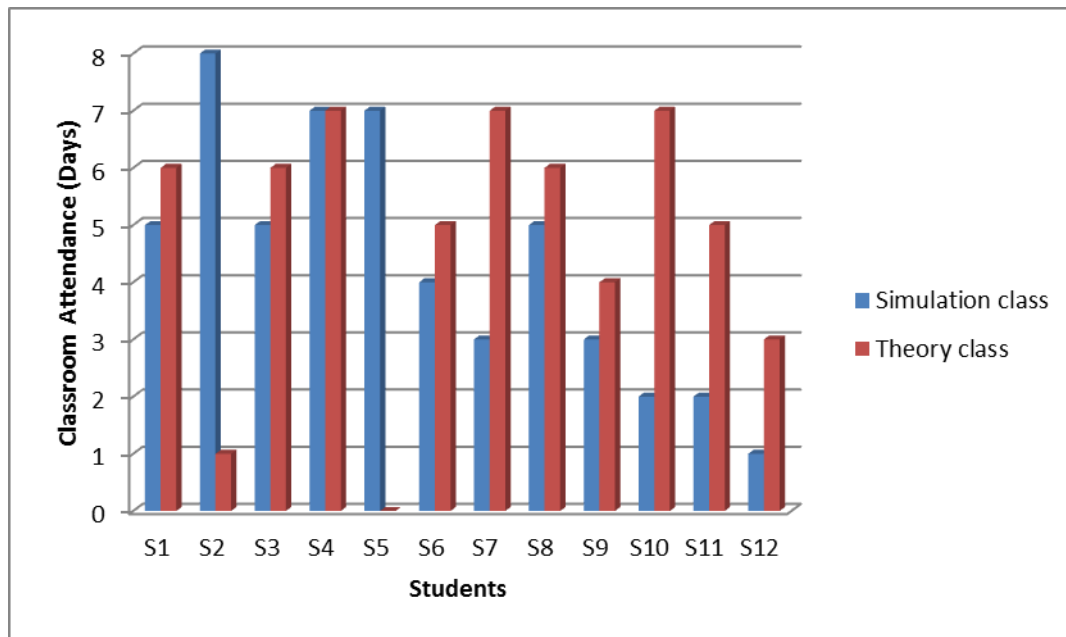
meetings in their own time. Students from Team One, namely S1, S2, S3 and S4, chose to run their class meetings outside the classroom during class time, explaining in the first focus group that they did not have the opportunity to meet outside class times. S1, S2 and S4 were mature age students with families and, in S1's case, work commitments.

We are not friends out of school like the other guys (S3FG1).

The other guys go out and hang out we don't being mature age students (S1FG1).

S10, S11 and S12 were individuals not in teams, they had the opportunity to interact informally with members of other teams in the simulation classes and outside class; however, the facilitator observed these interactions were limited given the competitive nature of the game. Students (and to a lesser extent S10, S11 and S12) had the opportunity to interact face-to-face with one another in the simulation classes and, in some cases, created their own opportunities to meet outside scheduled class time.

Based on an analysis of students' attendance in the simulation classes Team One attended more frequently than Team Two and Team Two attended more than Team Three. Students in Team One attended an average 6.3 days out of the nine days, Team Two 5.5 days and Team Three 3.7 days. S10 attended 2 days, S11 2 days and S12 only 1 day. According to Murphy (2004), the greater the attendance, the greater the opportunity for face-to-face interaction and collaboration. The data suggests that students did not appear to take advantage of these opportunities.



**Figure 12 Classroom attendance (days) by student**

Team One was more active in interacting with one another in both collaborative environments (face-to-face classroom forums and email forums) than were the other teams; the number of interactions in the face-to-face simulation classes and the frequency of email postings were also greater for Team One than the other teams. Team Three were more active in the email forums and less so in the face-to-face simulation classes; Team Two were more active in the simulation classes and less active in the email forums and Team One were very active in both forums. Individual participants without teams, S10, S11 and S12, took little part either in the face-to-face simulation classes or the email forums. From an analysis of the data the following conclusions can be made:

- Team One attended more simulation classes and interacted more in the simulation classes than the other teams; according to Murphy (2004) they gave themselves more opportunities for collaboration than the other teams.
- Individuals in one person teams (S10, S11, S12) had little opportunity to interact/collaborate with others.
- While opportunities were provided for participants (except S10, S11, S12) to interact and collaborate with others in the facilitator-organised email forums and simulation classes, these opportunities were not fully utilised by Team Two and Three, inhibiting collaboration; however engagement by members of Team One provided them with

collaborative opportunities. The research showed, however that members of Teams Two and Three collaborated informally in their own organised meetings. While the frequency and quality of these interactions are unknown, these meetings may have compensated for low face-to-face class interactions.

The following sections will examine factors that may enlighten us as to why participation in these forums was stronger for some than for others.

## **6.2 Setting up ground rules for collaboration/ getting organised for collaboration**

The literature identified important structures that need to be put in place to encourage collaboration. According to Thomson and Perry (2006), those seeking to collaborate need to establish ground rules: without these the collaborative process will be inhibited (Bardach, 1998; Mattessich & Monsey, 1992; Ring & Ven, 1994; Thomson, 2001; Thomson & Perry, 2006).

In order to create the right climate for collaboration, Thomson and Perry (2006) note rules need to be established that will govern participants' behaviour and relationships and develop structures on how agreements are to be made all within shared power arrangements. They refer to this as the Process of Collaborative Governing: the Governance Dimension. Thomson (2001) also emphasised the importance of establishing a collaborative administration process; there needs to be clear roles and responsibilities established, boundaries need to be set, concrete achievable goals need to exist and communication needs to be good to encourage collaboration (Thomson, 2001). Key administrative functions including coordination, clarity of roles and responsibilities and monitoring mechanisms are also identified as important in this collaborative process (Bardach, 1998; Mattessich & Monsey, 1992; Ring & Ven, 1994).

The research found that participants made adjustments to their collaborative environments, setting team-specific ground rules. Team One provided sound rules whereas Teams Two and Three did not provide adequate rules to support team collaboration. The facilitator created the collaborative environment (collaborative feature) and set class specific ground rules for all participants to follow, although these did not appear to be adequate and the data suggests more scaffolding was required.

The facilitator established a governance dimension for participants to follow; how team members were expected to behave in the email forums: these were outlined by the facilitator verbally in class and in written form, handed out to students and posted on the TAFE Virtual Campus website prior to the commencement of the game. These rules were re-enforced early on in the simulation game when a number of participants did not follow these requirements (see Appendix 15 Reminder email). The facilitator did not provide strict guidelines when it came to the in-class team meetings (face-to-face). To establish a collaborative administrative process, the facilitator clearly outlined the ultimate goals required for success in the game: high sales revenue and high cumulative net marketing contribution margin (profit after all costs including marketing costs); the teams that did the best in these areas at the end of the ten year period would be the winners. These goals were outlined in the theory classes prior to the game's commencement and re-enforced in the game's player's manual and simulation classes. The facilitator also set boundaries for students to work within each week; decisions needed to be inputted into the game prior to 11:59 pm on the Tuesday (although the facilitator encouraged this activity to be done in the allocated three hour class time) and individual weekly emails to team members and the facilitator were also to be submitted prior to the 11:59 pm deadline.

The facilitator established protocols including expectations, practices and rules and communicated these to the students prior to the commencement of the simulation game. In the email forums students were required to email members of their team their reflections on their team's performance in the previous simulation year and recommend marketing strategies and tactics for the upcoming year; the facilitator was to be included in all email correspondence. An email example (see Appendix 3) and Marketing Plan templates (see Appendix 4) were provided to students to outline a recommended structure for them to follow; these templates were distributed to students electronically and in hard copy prior to the game. The facilitator found that he needed to continuously remind students early in the game, both verbally and by email (see Appendix 15) to send their emails to all concerned and to follow the format as set out in the email template.

Not all of these ground rules (governance and administrative) were set by the facilitator; given the nature of the simulation game activity and the importance in keeping the learning environment authentic students and teams were responsible for the finer detail of these. In

relation to governance, teams were responsible for determining how agreements were to be made and how to manage participants' behaviour and relationships within the team itself. Teams at their local level were responsible for setting parameters on administrative matters, including determining team members' roles and responsibilities, and their own achievable goals (for each simulation year). Finally, how team members communicated with one another, although set predominantly by the facilitator in the email forum and simulation class structure, were determined by the team members; for example: if someone was away from class it was expected that they would inform their team members.

Although Team One did not establish these ground rules or dimensions of collaboration prior to the commencement of the game it became necessary early on in the game to put something substantial in place in order to encourage communication and collaboration. S1 raised concerns about his team in the fourth week of the simulation exercise; he led the team in suggesting team protocols including; establishing rules relating to team behaviour and relationships, creating a structure for reaching agreement on team decisions and trying to ensure all team members had an equal say. S1 also suggested guidelines in relation to team members' roles and responsibilities and appropriate communication within the email forums. In addition S1 took on an unofficial leadership role to try to ensure some team cohesion existed. A sample of S1's comments in the email forums below show his attempt to develop team ground rules for more effective team collaboration.

I really think that the way we should be tackling this smartsims project is to communicate as if we are each a manager of marketing have all our communication with suggestions and disappointments and Joy etc all expressed on paper to stay on paper (S1 E2013).

One should not dominate another nor one should not put down suggestions or attempt to upset anyone else. All communication should be carefully thought about and the results of the communication content should be accessed before pressing send (S1E2013).

We need to 'bounce ideas' off each other and as a result of back and forth emailing come up with a clear directive of what needs to be done in the year ahead AND WHO INPUTS it into the game (S1 E2013d).



Can I suggest that we try to put our ideas into a collective email with what we need to do. Please add your directives and ideas to this and we can work on how we will implement them and in which order of preference we should for maximum return (S1 E2013a).

We really need to have some sort of record of what everyone's suggestions are on one page and work from there in order of importance. That way we can see what we have all decided upon and what has been executed. As the year is drawing to an end, let's get our final ideas together (S1 E2014).

S4 in Team One also suggested ground rules for collaboration, making recommendations on how team members should prepare themselves for the classroom team meeting as well as their plans for evaluation after the meeting.

When possible we will get together after Tuesday so we can evaluate the effects of our decisions (S4 E2013).

Before going into our 'Nominal Group Meeting' we should have our individual ideas worked out and written on papers so that we don't become persuaded by other members' opinions (S4 E2014a).

The only evidence of Team Two's attempt to establish ground rules was found in one email posting from S5; he described the ground rules his team needed to adhere to, in particular how agreements on simulation decisions were to be made.

Please make sure that all changes **MUST** be run through all team members to avoid discrepancies. Evidence of how disastrous miscommunication is apparent with 2012's appalling results. Let us make sure we work together to create success! (S5 E2013).

Evidence of suggested ground rules from Team Three came from email postings from S7 and S8, who both made suggestions on evaluation guidelines.

We should closely evaluate our sales revenue and net contribution at all times to make sure the decisions we are making are profitable (S7 E2010).

Monitoring our actions must be done regularly to ensure that everything is oiled up and gears in sync (S8 E2013).

Although Teams Two and Three attempted to recommend something to encourage team collaboration their suggestions were too broad and vague. These rules or guidelines were inadequate providing team members with little direction. There may have been more specific and a greater number of ground rules created by teams outside the email forums and simulation classes, the researcher has no evidence of this. The facilitator observed unwritten rules (team verbal conversations) that guided team behaviour: for example, who will make decisions about promotional strategies today, who will purchase and analyse market research and who will initiate the discussion in the email forums. Without sound ground rules, including written ground rules, the collaborative process will be inhibited (Bardach, 1998; Mattessich & Monsey, 1992; Ring & Ven, 1994; Thomson, 2001; Thomson & Perry, 2006). Team One, however, provided an array of suggested rules or guidelines that were specific (and written) including how to document ideas, how team members were to treat one another, what process to follow in the email forum and team requirements before and after team meetings. These were sound suggestions that encouraged team collaboration. Team One supported their collaborative environment and encouraged authentic learning. Team Two and Three inhibited collaboration in their respective collaborative environments by not establishing sound ground rules. This inhibited authentic learning opportunities, reducing team members' opportunities to learn with others, inhibited the number of interactions with peers and experts and the opportunity for complex collaboration.

### **6.3 Activities undertaken to support collaboration**

There was evidence in this research of positive activities undertaken by students that appeared to support collaboration in this simulation game. Students monitored and gathered information about other students to try to ensure all worked together, there was evidence of students protecting their work environment from negative actions or inactions of others and evidence of students providing assistance, encouragement and reassurance to fellow team members. The research also showed that the facilitator, Team Two, and Team Three did not

adequately monitor nor protect their collaborative environments inhibiting collaborative and authentic learning opportunities.

### **6.3.1 Monitoring and protecting the collaborative workspace**

According to Gutwin and Greenberg (2000), monitoring and gathering information about others in your workspace are activities necessary to support collaboration. These activities are directed at investigating who is in the workspace, where are they working and what are they doing (Gutwin & Greenberg, 2000). If anything is untoward in relation to these questions something can be done to support a more collaborative workspace; Gutwin and Greenberg (2000) refer to this as protection, that is, one needs to keep an eye on what effect others' actions could have on one's own work, and take action where necessary to prevent anything negative impacting on the collaborative process.

Team One not only monitored their workspace, they took appropriate action to protect it to try to encourage collaboration. Teams Two and Three did not take appropriate action to overcome barriers to collaboration. The facilitator also did not take appropriate action to protect the ground rules he implemented prior to the game.

In Team One's workspace, for example, S1 monitored what other team members were doing and took corrective action to ensure a collaborative team environment was encouraged. S1 articulated his disappointment about what team members S3 and S4 were doing; in an email to the facilitator S1 describes how S3 went against team recommendations and put in his own decisions without consulting others.

[This] created much controversy in the team and has completely changed the group synergy (S1 E2012).

S1 explains how he tries to keep the team together.

I try to manage the team spirit while trying to make the team understand their actions and the resulting implications on the team dynamics (S1 E2012).

S1 also took action to support a more collaborative workspace by emailing S4 to inform her that her behaviour was inappropriate.

We are all equal at TAFE and one should not dominate another nor should one put down suggestions or attempt to upset anyone else. All communication should be carefully thought about and the results of the communication content should be accessed before pressing send. Hit DRAFT button and let it sit there for a few mins and then SEND it (S1 E2013).

S1 also took out his frustration with his entire team in response to their inactivity to implement their team's decisions.

Last week's misunderstanding was CRAZY ! I take responsibility as I wasn't there but someone should have been assertive and taken the initiative to implement the changes that we decided upon (S1 E2009).

When the team did not correspond at all in the email forums S1's email below tried to get them going for the coming year. He continues to try to get the group collaborating.

Hi all, It seems as though the rough year last year scared everyone into hibernation! So there were no changes for last year but we really need to be more pro active and challenge the current market leaders for some market share.

Should we look at doing a GE matrix or BCG matrix to see where the performance of our SBUs are? What are some of your recommendations for the year ahead? (S1 E2014a).

The point is S1 encouraged the collaborative process in his team's learning environment by monitoring the activities of his team mates and taking corrective action (protection) when necessary.

Although there was further evidence to show participants monitoring others in their workspace nothing appeared to be done to overcome collaborative barriers; for example S3, and S8 observed some team members ignoring collaboration and making changes to team decisions without consultation; this was laughed off in Focus Group Two, as something that

could not be controlled. In S7's email forum workspace she observed, in most cases, no one responding to her email postings; there was no evidence in the email forums or focus group discussions to suggest she tried to rectify this. The facilitator noted that participants' were disappointment when team members failed to inform others of their absence in simulation classes and/or team meetings; no further action appeared to be taken to overcome this, it just appeared to be accepted. The point is (with the exception of S1) that although participants monitored others in their workspace the data suggests little if anything was done by them to overcome collaborative barriers, that is implementing protective activities.

The facilitator too did little to protect the collaborative environment and ground rules he set up. While he posted an email to all participants early in the game reminding them all of their responsibility to adhere to the email protocols, he did not intervene when participants failed to contribute regularly in the email forums, or attend simulation classes regularly or take turns in leading email discussions. As stated the facilitator tried to keep the learning environment authentic and felt that intervening in activities such as the collaborative process could impact on this. However, on reflection it may have been necessary for the facilitator to provide more intervention/scaffolding. For future simulation classes like this the research suggests more scaffolding is needed to put systems in place to not only set up ground rules (by teams and facilitator) but to monitor and protect these. The students' and facilitator's inability to monitor and protect their collaborative environments inhibited opportunities for students to learn with others and engage in discourse and social practice, both necessary for authentic learning (Kruger et al., 2001) and (Cronin, 1993; Donovan et al., 1999; Newmann, 1996; Rule, 2006). S1's actions, however, encouraged his team's collaboration and authentic learning.

### **6.3.2 Assistance**

According to Gutwin and Greenberg (2000), part of the collaboration process is ensuring group members help one another when it is needed. The request for assistance may be opportunistic and informal or be sought out in more formal settings and communications. To support this activity, it is important that all members have an understanding of the roles and responsibilities of others and how they are progressing with their tasks.

The facilitator observed the more able players (for example, S5 from Team Two and S3 from Team One) helping their team members and others from other teams in areas of the game.

This included how to create a new product, how to order more stock and suggesting the most appropriate market research reports. Comments by S6, S8 and S9 provide further evidence of assistance provided by others.

My partner (S5) was a great learning guide for me as he had a more wider knowledge and a more practical approach on things (S6 Questionnaire Q24).

At the start we weren't really sure what we were doing S5 helped me and we managed to buy reports and stuff (S8FG2).

In response to the Question 24 in the questionnaire: Did you learn from others in your team? S9 responded:

Yes, different people have different ideas gather other's ideas and make better choice (S9 Questionnaire Q24).

In Focus Group One it was revealed that members from Team Two and Three met regularly outside of class helping one another with the simulation game. There was evidence to show participants helped one another and, although the game was a competition, there was collaboration within and between teams.

### **6.3.3 Encouraging and reassuring others at times**

As well as providing assistance to one another, there was evidence from the email forums showing team members encouraging and reassuring one another at times throughout the simulation exercise. This is further evidence of positive team communication and collaboration and encouraging authentic learning opportunities.

Good morning team members, Wow, what an amazing year! Thanks everyone for working so hard to achieve the significant results especially [S1] for staying up late so many nights to analyse our company performance history (S4E2017).

Well done team, keep it up (S8 E2015).

Another good year team (S7 E2016).

Good morning team, Hoping you are all well and in good spirit (S4E2018).

Hopefully I will do well this coming year (S10 E2012).

Keep up the good work Regards (S1 E2013).

Dear Team, Sales were bad this year but let's stay optimistic! (S1 E2012).

I agree with (S1) that the sales for last year were disappointing but we mustn't get disheartened (S2 E2012).

Regarding our objectives for the year ahead I still believe that we have a marketable product and, although sales are not reflecting my thoughts at the moment, do not think we should lose heart! (S2 E2014).

In the following emails S8 is trying to reassure team members that they will be alright in the long-term.

The amount of funds we have put into resources, promotion and market research will not show a positive result initially. We have to hang in there and be patient. Our brand awareness is huge and the strategies we have used will show large gains in the long term. Please be mindful that a negative result does not mean we have lost the war (S8 E2011).

This year will be a turn over and will bring us back into the game. Have confidence in our marketing schemes. We just really need to focus on our sales for the next couple of years. We have built a strong foundation (S8 E2012).

## **6.4 The individual and collaboration**

Hughes, Wickersham, Ryan-Jones and Smith (2002) identified four factors that impact on the effectiveness of online collaboration: the participants' perceived value of collaboration (Angehm, 2006); participants' comfort and trust with the environment; participants' trust with their fellow collaborators and facilitator and participants' perceived richness of, and engagement with the social experience. These factors will be discussed in the following sections; resistance and reluctance to working in groups, collaboration and trust, knowledge sharing and collaboration.

### **6.4.1 Resistance to working in groups**

In this study a number of participants expressed their resistance to working in groups; this resistance may have contributed to inhibiting the collaborative process. Their perceived

richness of and engagement with the social experience appeared lacking and this appeared to inhibit collaboration in teams' collaborative environments.

I've learned that I can't work with anyone (S4FG1).

If I had the opportunity I would definitely operate on my own (S1FG1).

I was looking forward to be in a team but I have been disappointed (S2FG1).

I didn't want anyone in my group because I don't want to work with anyone (S2FG1).

The waiting for others made it difficult (S1FG1).

There are so many different areas ...you focus on one or two things then you wait for others (S4FG1).

If we could do this in our own time. I would enjoy the game on my own (S3FG1).

If you do it individually, it's your action and you pay for it you don't have to justify it to anyone (in your group) (S4FG1).

If we were to do it again I would choose to do it on my own (S3FG2).

Our team was too big. Too many personalities, didn't enjoy teamwork (S2 Questionnaire Q24).

S7 appeared keen to work in a team however found her team mates did not cooperate and collaborate as she would have liked. S7 continued to email her team members every simulation period but received more non responses than she did responses. This was also the case in her face-to-face classroom experience.

Didn't really get a chance to discuss things/decisions. I found that everyone was uninterested (S7 Questionnaire Q24).

Difficulty working in groups/personality clashes/infighting issues

Although only evident in Team One, infighting was a barrier Team One tried very hard to overcome. There were personality clashes between S1 and S4 and, S2 and S4. S1 tried to settle things down in his email to S4.



We are all equal at TAFE and one should not dominate another nor should one not put down suggestions or attempt to upset anyone else. NOW knowing your personality you will take this as a personal attack!! It isn't at all. All it is is saying I can see some cracks and would like to attend to them and keep tafe an enjoyable place to go (however frustrating it may be) S1 email to S4 (S1 E2013).

S4 met with the facilitator in week six describing personality problems existing between her and S2. Although a difficult situation for the team, they all decided to persevere and work together to the best of their abilities.

#### **6.4.2 Collaboration and trust**

##### **Trust with fellow collaborators**

Trust is a key component of collaboration (Bardach, 1998; Hughes et al., 2002; Huxham & Vangen, 2005; Thomson & Perry, 2006). Thomson and Perry (2006) identified the importance of establishing trust and reciprocity to create a collaborative environment, that is individuals will often demonstrate a willingness to collaborate only if others demonstrate the same willingness.

There was evidence to show in this research that some team members did not always consult with their fellow team members and instead went ahead and made decisions independently of the team. Other evidence describes team members not implementing team decisions, being too slow in responding and refusing to respond to other team members' email correspondence. These actions (or inactions) may have reduced trust and consequently the willingness of others to collaborate. For example, S8 commented in Focus Group Two: And then four years in he [S9] introduced a new product without telling us (S8FG2).

S3's actions did little to impart confidence and trust with team member S1.

Very early in the piece he [S3] went against the group decisions and introduced the sport model too early (going by the manual) this really created some friction in the group. He [S3] has also not done some changes at times and on one occasion didn't change anything (S1 E2016).

Both S4 and S2 have been very proactive with the email but S3 has been very slow getting anything to us and even will not answer S4's correspondence. I like S3 as a

student to have a coffee and a laugh with at school but as a team member in group assignments no thanks (Email from S1 to facilitator) (S1E2016).

It was interesting that S3 had his own difficulties trusting team members and collaborating.

I enjoyed the game part but communication within our team was difficult at times. We had people that would log on at 11pm and changed whatever was about to roll over without discussing it with anyone, the next day you would come back and look at it and you would say who did that? (S3FG2).

We had a member of our team do that as well they deleted a product from our range and we had to replace it and we lost we had to start again for that one (S3FG2).

As Hughes, Wickersham, Ryan-Jones and Smith (2002) note trust in collaboration involves team members trusting one another to carry out their roles and responsibilities. Team members were required to contribute to the email forums, taking it in turns to lead the discussion, and attend and contribute in-classroom team meeting. The facilitator observed evidence of some participants contributing as required in the email forums (for example S1, S2, S4, S7) and some doing likewise in the classroom meetings; however as noted above this was not consistently followed in this learning environment.

### **Trust with facilitator**

Instructors can help students gain trust in them if they show they are competent, involved and available (Hughes et al., 2002) and offer guidance, suggestions and address student difficulties in the learning environment (Murphy, Mahoney, & Harvell, 2000; Rogers, 2000).

The facilitator was available to students during class time and outside class via the email forums and face-to-face by appointment. S1 and S4 sent separate emails to the facilitator confiding in him and seeking solutions to collaborative problems they were having in their team; S4 also arranged to meet with the facilitator to discuss her problem further. Relating specifically to the decision making process, students were trusting of the facilitator, open to discussing any game related problems they were having in classroom time and sharing their team emails (although this was a requirement imposed on them by the facilitator). Students appeared to trust the facilitator as someone supporting them in this learning environment. Collaboration between students and facilitator appeared to be positive.

### **Trust with the environment**

It was revealed that Team One had difficulty running their team meetings in the simulation classes; this environment did not provide the participants with enough privacy to communicate their strategies freely to one another without the threat of competitors listening in. They decided to reconvene future meetings to the TAFE library and returned to class to input their decisions and write their emails. There was no direct evidence to explain why Team Two and Three participants did not always utilise the simulation class time to run their meetings; they may not have trusted this environment as Team One did to run their meetings and chose instead to meet outside class in informal settings. There is no data to support this, however.

It appeared that students differed in the extent to which they fulfilled their required roles and responsibilities as required by the facilitator and teams. The actions or inactions of team members appeared to inhibit teams' collaboration in their collaborative environments. These actions or inactions, as evident in some of the student utterances in the focus groups and email forums, suggest team members had lost trust with other team member and this inhibited the collaborative process. Students' poor perception of their facilitator-organised collaborative environment (face-to-face classroom setting and email forums), discouraged participation and collaboration, reducing students' ability to participate in authentic learning activities such as learning with others and interacting with experts.

### **6.4.3 Knowledge sharing and collaboration**

Social competence is the ability of individuals to establish and maintain collaborative interpersonal relations (Kihlstrom & Cantor, 2000). Cognitive competence is the ability of individuals to seek knowledge assets in contexts that are diverse and the ability to transfer, adapt, combine and develop them further (Angehm, 2006). Both social and cognitive competencies play a key role in collaboration and innovation and learning (Levin & Cross, 2004; Mayer, Davis, & Schoorman, 1995).

Figure 11 shows the collaborative platforms students had available, namely the email forums and face-to-face communication; collaboration in these environments provided students with the opportunity to gain knowledge from others, for example Vygotsky's (1978) zone of proximal development, and transfer their own knowledge to their team. The combined team knowledge (student content) then accumulated as shared knowledge/content. Students were

able to input their own knowledge independently, whether acquired from their own individual game experience or external to the game into this shared knowledge/content bank.

### **Social competence**

There have been barriers cited in this chapter (for example, perceptions of working in groups) that have impacted on the social competence of individuals and this has had an impact on the knowledge transfer/sharing arrangement in this learning environment. The individual student may be naturally more or less confident communicating with others and this would have an impact on their social competence in this class, this research did not investigate individual's differences in this area however. The barriers to students' social competence identified in this research study have inhibited participation in the collaborative environment and opportunities to engage in authentic learning experiences.

### **Cognitive competence**

There were also barriers deriving from individual's cognitive competencies. Section 5.1 noted that not all students had the same understanding (knowledge) of marketing principles nor of the simulation game itself. This lack of knowledge of marketing principles that is, deficiencies in cognitive competence lowered these students' motivation to collaborate (knowledge sharing) and hence their learning.

As the game progressed these students became more knowledgeable and were more open to seek knowledge assets from others (students, facilitator and other external sources such as the game itself). Student interactions in the email forums showed that students appeared to display cognitive competence imparting their knowledge and understanding of their team's current position in this simulation world and transferring this into the team's shared knowledge/content bank. The same can be said for the discussions that the facilitator observed as taking place in the simulation classes (face-to-face communication). Students displayed different levels of cognitive competence that had an impact on each team's collaborative experience. Cohen and Levinthal (1990) stated some individuals may not have the competencies to integrate different knowledge sources and this may become a barrier to effective collaboration. S6 and S9, for example, appeared to struggle to understand aspects of the game thereby limiting their ability to seek knowledge assets in the simulation environment, and limiting their cognitive competence and ability to share knowledge.

However, the more competent participants (for example, S3 and S5) imparted their knowledge to other less competent participants (for example, S6 and S9) assisting in increasing team members' competence, equating to Vygotsky's zone of proximal development (Vygotsky, 1978).

The facilitator did his best to transfer knowledge/content to all students in the simulation classes, and in theory based classes leading up to the simulation game so as to contribute to students' cognitive competence. It could be argued that further structure could be introduced (scaffolding) to enhance cognitive competence in future simulations a discussion that will be further investigated in Chapter 7.

The strength of students' cognitive competence influenced their ability to participate in the collaborative environment and their opportunities to experience authentic learning.

## **6.5 Conclusion: collaboration results and discussion**

This chapter addresses the second research question in this research study; what factors influence student authentic learning while participating in a marketing simulation game? It described the collaborative environment and discussed factors that influenced collaboration and students' authentic learning. Namely, the presence of ground rules for collaboration; activities supporting collaboration; the individual's level of resistance to working in groups; trusting others; and students' social and cognitive competence. The literature identified collaboration as important for authentic learning (Gee, 2007; Herrington et al., 2010).

Some students' cognitive and social competence limited their ability to engage fully in the collaborative environment. It appears that the design of the collaborative environment (the classroom environment and the email forums) inhibited some students' participation. Chapter 4 identified some students as having concerns about aspects of the asynchronous characteristics of email forums and others (for example, S1, S2 and S4) did not appear comfortable in the classroom setting. Students in Teams Two and Three did not appear to implement adequate support mechanisms to ensure their collaborative environment was fully utilised; they did not appear to adequately monitor or protect this environment nor provide much assistance to one another. Team One, on the other hand, did provide what appeared to be appropriate support, monitoring, protection and assistance in their collaborative environment.

The data showed that some students had a poor perception of teamwork and this appeared to contribute to reducing their participation in the collaborative environment, while some students acted independently of their team at times and this contributed to reducing trust among team members, thereby impacting on collaboration. All of these factors contributed to reducing the amount of collaboration that occurred in the collaborative environment, inhibiting what the literature has identified as requirements for authentic learning: opportunities to engage in discourse and social learning,(Cronin, 1993; Donovan et al., 1999; Newmann, 1996; Rule, 2006) learning with others and in groups and opportunities to interact with peers and experts(McNeil, 2003).

The research suggests the facilitator should have provided more scaffolding to encourage students to provide better support structures for collaboration. This included support for teams to develop, implement and manage rules and protocols within their collaborative environments. This inaction it appears inhibited students' authentic learning in the learning environment. Chapter 7 includes an examination of this.

## **Chapter 7. Scaffolding and authentic learning**

Chapter 5 (motivation) and Chapter 6 (collaboration) addressed the second question in this research study: What factors influence student authentic learning while participating in a marketing simulation game? It was identified that motivational factors and factors influencing collaboration had an influence on students' authentic learning. This chapter will identify scaffolding as an influence on students' authentic learning.

Herrington, Reeves and Oliver (2010) defined scaffolding as:

the role of the instructor in providing sufficient directions to get learners started on the right path when confronted with a complex authentic task, reining learners in when they stray too far from a feasible path to task completion, pointing students to useful resources, nurturing clear communication and fruitful collaboration, and in general providing learners with just enough support so that they accomplish the tasks primarily through their own efforts. (p.69)

From an analysis of the literature review on scaffolding and the results of this study themes around scaffolding became evident. This chapter is organised around five themes; scaffolding and competence, scaffolding and motivation, scaffolding and collaboration, scaffolding and managing the learning experience, scaffolding and control.

The facilitator provided scaffolding to get students started on the right path, to nurture and support collaboration, to support students' learning capacity (cognitive competence), to encourage motivation and support students' management of their learning experience. It has been identified in this study, and will be discussed in this chapter, that scaffolding directly influenced student competence, student motivation, collaboration and authentic learning experiences. It will also be discussed that students' competence influenced student motivation and collaboration. The research findings suggest the facilitator needed to provide more scaffolding at times and take more control of the learning environment to enable more authentic learning opportunities for students. The literature identified authentic learning as participating in authentic tasks (Newmann, 1996; Rule, 2006; Windham, 2007) involved in authentic problems (Newmann, 1996; Rule, 2006; Windham, 2007) and metacognition (Herrington et al., 2010; Kruger et al., 2001; Newmann, 1996; Rule, 2006), learning with

others (Kruger et al., 2001; Rule, 2006; Windham, 2007) and student-directed learning (Rule, 2006; Windham, 2007).

## **7.1 Scaffolding and competence**

Scaffolding had an influence on students' cognitive and social competence. Cognitive competence is the ability of individuals to seek knowledge assets in contexts that are diverse and the ability to transfer, adapt, combine and develop them further (Angehm, 2006).

Without this capability this may inhibit student' ability to integrate different knowledge sources into their learning (Cohen & Levinthal, 1990) and limit their ability to share knowledge assets with others, inhibiting collaboration (Cohen & Levinthal, 1990). Social competence is the ability of individuals to establish and maintain collaborative interpersonal relations (Kihlstrom & Cantor, 2000). The role the facilitator took in supporting students' social competence will be addressed in Section 7.3, scaffolding and collaboration. The literature states that an individual's social and cognitive competence plays a key role in collaboration, innovation and learning (Levin & Cross, 2004; Mayer et al., 1995). To help support students' competence, scaffolding was provided to help learners get started in the game, additional support was provided to struggling students during the game and ongoing support was provided for all. These will be discussed in this section. Although the facilitator did his best to transfer knowledge/content to all students in the simulation classes and theory based classes leading up to the simulation game the research suggests more guidance could have been provided to enhance students' cognitive competence prior to the game, in particular for S1, S2 and S4 and during the game for S6 and S9.

### **Getting learners started on the right path**

As stated earlier Herrington, Reeves and Oliver's (2010) definition of scaffolding includes the instructor providing sufficient direction to get learners started on the right path. In order to prepare students for the game the facilitator attempted to support and develop their cognitive competence. The facilitator attempted to provide students with sufficient direction in relation to understanding the game itself, the collaborative environment, the learning environment and protocols surrounding these. The facilitator introduced students to the marketing simulation game presenting two PowerPoint presentations and a seventy eight page player's manual (both PowerPoint presentations and the player's manual were resources that accompanied the game). The PowerPoint presentation set the scene, describing the



marketing scenario including a description of the market segments and marketing strategies available to each team. The second presentation demonstrated how to input decisions into the game, how to analyse teams results (from a number of reports), how to introduce new products into the game and how to purchase market research. Both presentations took place in the first marketing class. The facilitator provided students with a brief overview of the player manual in marketing class two; it was, however, up to each team to read the entire seventy eight pages prior to the game's commencement.

The facilitator also introduced students to a short quiz in the third marketing class testing students' understanding of the simulation game's marketing environment. Practice sessions were introduced in the fourth and fifth marketing classes; a review of the outcome of both practice sessions, including teams' profits, sales and brand awareness, took place at the beginning of the fifth and sixth class, by way of a classroom discussion. At the end of the practice sessions the real game commenced in week six.

In the practice session classes the facilitator articulated what was expected of students in the email forums and the simulation classes. An email example was distributed to students - in hard copy and posted on the TAFE Virtual Campus website prior to the game (see Appendix 3) this was intended to guide students in relation to the content and style required in their individual emails. Marketing templates were also included (see Appendix 4) with this email example document to support and direct students' thinking in relation to the marketing content required in the email discussions.

Although the facilitator did his best to transfer knowledge/content to all students in the simulation and theory based classes leading up to the simulation game, the research suggests more guidance could have been provided to enhance students' cognitive competence prior to the game to enhance their collaborative abilities. For example the research found S1 needed more support prior to the game to help his understanding of the player's manual "I needed guidance ...three hours on it this is what the marketing report is...this is what your objectives are, this is a summarised version of the manual. As a game it lacks in areas for me I went into the game without significant information, I'm not saying it's you (referring to the facilitator)" (S1FG1). S4 commented positively about the quiz that accompanied the game, however suggesting the facilitator expand on this. "I liked the quiz we had ... maybe make it a bit more detailed" (S4FG1). S1 suggested students be required to do an assignment prior to

the game to better prepare themselves for it: “I would have liked to have done an assignment based on the previous year’s report...and then enter into the game having a full idea of how things affect each other” (S1FG1). S5 recommended for future simulation exercises that additional support be provided to students by way of a facilitator run correspondence class that could take place on a weekly basis. All teams could discuss their results including

...what had gone wrong and have a discussion ...we could stand to learn a lot by asking what did you do...so you’ve done something right and we are down \$50 million we have done something wrong so we would like to exchange information and learn how to better improve our ability to play the game . (S5FG2)

These quotes highlight the desire some of the students had for sufficient direction to get them started on the right path, that is the desire for additional scaffolding.

### **Additional support for struggling students**

If students aren’t sufficiently prepared to start the game because their cognitive competence is low instructor support is necessary (Yakonich et al., 1997). As discussed in Section 5.1 S1, S2 and S4 did not have adequate cognitive competence to allow them to feel confident participating in the game and were in no position to seek knowledge assets at that time. They lacked knowledge in relation to marketing theory and the simulation game itself. Their low level of cognitive competence was identified in the research as a motivational barrier and a barrier in relation to their ability to collaborate because of their inability to participate in knowledge sharing activities. Their low level of cognitive competence restricted their ability to experience authentic learning, inhibiting the ability to learn with others and participate in student-directed learning. The facilitator did provide some scaffolding to support these learners and increase their cognitive capacity. The facilitator provided additional support; in the latter part of some simulation classes students that decided to remain for this session were provided with free information (market research) and tips. This was done on an adhoc basis in response to difficulties students were having on particular days; it helped students get back on track as well as acting as a motivator/incentive for them going into the next simulation year. The facilitator also provided additional support to Team One in response to an email request from S1; his request sought clarification on email forum protocols and his team members’ roles within the game.

I would appreciate it if you found the time to email me (not as a reply, but as a new email as I will show it to the other members) explaining the method in which you would like us to email between each other. I.e. we're all vice pres of marketing? We are all members of the marketing team? We are all employees of the company with one member the VP? Please define our roles a little clearer as I believe the waters have muddled over recent weeks (S1 E2012).

Although the facilitator provided additional support for struggling students some of the research findings identified in Section 5.1 (self-esteem) suggest the facilitator could have provided more scaffolding for these students. For example, leaving the students to digest the seventy eight page player's manual on their own may have been a mistake. The manual was an important tool to support students' understanding of the simulation game, without facilitator support it may have become a barrier instead. It became apparent from the facilitator's observations that students did not refer to the player's manual as often as he would have liked, some seldom referred to it and others may not have referred to it at all. This research did not directly focus on the extent to which students used the player's manual there is only the facilitator's observations to support this. S1 did refer to the player's manual prior to the game and his comments show there was a disconnection between understanding it (the player's manual) and playing the game. "...the whole concept of the game the 78 page manual I really did try to get into prior to the game... it's a much more practical exercise... it's like trying to understand Windows 2007 without using it (i.e. the manual) ... A little bit more practical experience is needed I went into a bit blind and overwhelmed" (S1FG1). Referring back to Chapter 2 Section 2.2.2, it was discussed that simulations and games provide situated learning (Gee, 2007; Gutwin & Greenberg, 2000; Thomson & Perry, 2006), concepts need to have situated meaning for real understanding to occur, tools such as manuals and textbooks can only be fully understood through use (Brown et al., 1989; Gee, 2007). For students to fully engage in the player's manual it may have been far better to embed the manual within the game itself as many commercial non educational games our children play outside of school do. As this game was not designed this way, the facilitator could have provided scaffolding to try to bridge the gap between the manual and the game simply by taking more control and responsibility in showing students how they link together. Scaffolding may have provided a more authentic learning experience by seamlessly integrating the manual into the learning experience, allowing students to experience authentic learning tasks and problems.

## Ongoing support

Scaffolding by way of ongoing support and guidance was provided to students in the classroom setting throughout the simulation exercise. This scaffolding sought to enable learners by increasing their cognitive competence in the simulation game learning environment and provide opportunities for students to participate in authentic learning.

- At the commencement of each class the facilitator reviewed the results of the previous simulation year, this included a review and discussion of the Industry Benchmark Report [a report that included a comparison of each teams' performance in relation to key performance indicators such as sales revenue and profit and marketing expenditure and provided recommendations for teams to follow (see Figure 8) .
- In other marketing classes (non-simulation classes) the facilitator linked marketing theory covered in lectures and tutorials back to the simulation exercise. S1 and his team for example integrated one of the marketing principles into the game after working through the theory in class. "...we really need to be more proactive and challenge the current market leaders for some market share. Should we look at doing a GE matrix or BCG matrix to see where the performance of our SBUs are? What are some of your recommendations for the year ahead?"(S1 E2014).
- The facilitator was available to support students' learning in the simulation exercise outside of class time by way of face-to-face, telephone and email communication. Members of Team One for example approached the facilitator outside of class (face-to-face and email) to discuss problems they were having within their team. The facilitator worked with team members to ensure the team continued to work together throughout the simulation exercise.
- The facilitator was available during allocated class time to assist teams in the technical aspects of the game (for example how to introduce a new product into the game) and providing general advice to struggling teams
- The facilitator assisted teams in class to make sense of the simulation game tips and hints

- The facilitator pointed students to useful resources, including marketing templates, marketing theories, and tips and hints from within the game itself

## **7.2 Scaffolding and motivation**

According to Ryan and Deci's (2000) taxonomy of human motivation model, scaffolding can influence students' motivation. This could be by way of a demand imposed upon the individual or a reward or incentive. In this learning environment the facilitator reminded students of their obligation to participate in the collaborative environments (see Appendix 15); he did not however demand this of them. The facilitator introduced some rewards in an attempt to encourage student motivation and further engagement in the learning environment.

Financial incentives (simulated funds) were provided by the facilitator each simulated year to the top three ranked teams who secured the highest market share and profit. The facilitator would input simulated money into teams' bank accounts in the game; from the facilitator's observation this created a sense of excitement and provided an incentive for all teams to share in the weekly prizes. One million (simulated) dollars was allocated to the first placed team, five hundred thousand dollars to the second placed team and two hundred and fifty thousand dollars for third place. The facilitator also made available free market research at the end of some classes. As an additional incentive and with the consensus of the class the facilitator would share some free market information with the class; for example competitor prices, distribution coverage, segment sizes (teams could normally only access this information by purchasing the appropriate market research). This not only provided students with a reward it also allowed the facilitator to explain what was happening in the simulation world at that particular time, adding to students' cognitive competence. The facilitator observed these activities as special for those that chose to participate. There was excitement and curiosity expressed by a number of students at this time.

As well as providing scaffolding to try to increase students' cognitive capacity the facilitator provided support to students to try to enhance their self-esteem. Self-esteem relates to a person's feelings of adequacy and competence (Komarraju & Karau, 2008). This can be done by encouraging and nurturing them "...providing keys that help the student break through the emotional paralysis often caused by the belief that one is simply unable to succeed" (Yakonich et al., 1997, p. 32). Only S1, S2 and S4 from Team One described their feeling of inadequacy early on in the game; their inadequacy was in relation to their struggle to

understand the game itself and their belief that they lacked sufficient marketing knowledge going into the game. Other students in this research study may have had similar feelings, there wasn't any data identified in this study however to support this notion. These findings only became known in the sixth simulation year and by this stage their feelings of adequacy had grown (see Section 5.1).

### **7.3 Scaffolding and collaboration**

The facilitator provided scaffolding to create and nurture the collaborative process in the learning environment. Collaboration is an important ingredient to create an environment that provides authentic learning opportunities (Gee, 2007; Herrington et al., 2010). The facilitator introduced to the simulation exercise a collaborative feature comprising in-class team meetings (face-to-face) and email forums (online asynchronous) , implemented ground rules for collaboration and monitored and protected the collaborative environment. The facilitator nurtured students' collaborative environment, reined learners in when they strayed and encouraged social and cognitive competence to encourage participation in collaboration.

The research findings suggest the facilitator could have provided more scaffolding (providing more direction to get them started on the right path) to ensure teams established substantial ground rules prior to the commencement of the game. Teams did not establish these prior to the game nor did they do much during the game to protect their collaborative environment.

The facilitator tried to encourage collaboration by setting up a collaborative feature that:

- Provided the opportunity for participants to work in teams
- Provided class time for teams to work on future decisions and reflect on past ones
- Established email forums for teams to communicate with one another to articulate recommended future decisions based on past performances

The game produced reports to show what each team did; the collaborative feature was introduced to provide a platform for students to articulate why they were doing so. Without the collaborative feature it is the facilitator's belief that the game would become purely a number crunching exercise. There needed to be some collaborative structure built into the game to give it meaning and authenticity (Cronin, 1993; Donovan et al., 1999; Gee, 2007; Herrington et al., 2010; Newmann, 1996; Rule, 2006).

Although the facilitator provided a collaborative feature, an important ingredient for authentic learning (Herrington 2010) and supported students' interactions in the collaborative environment, it according to Murphy (2004) won't automatically guarantee collaboration (Murphy 2004). According to Murphy (2004) for participants to experience collaboration they need to move along a continuum through six stages; social presence, articulating individuals perspectives, accommodating or reflecting the perspectives of others, co-constructing shared perspectives and meanings, building shared goals and purposes and producing shared artefacts. Murphy (2004) suggests scaffolding can guide participants along this continuum. Analysing the activities and interactions made by participants in this study S6, S9, S10, S11 and S12 did not meet Murphy's (2004) collaboration criteria, the rest of the participants in this study did. S6 and S9 may have struggled in the game, they did not articulate this to the facilitator nor did their utterances in class or in the email forums suggest this. They may have had a low level of cognitive and social competence; there was no data in this study to identify this however. It was explained that S10, S11 and S12 were not in teams and did not have the opportunity to collaborate with others. The facilitator could have created some structure around these students' learning to move them along Murphy's collaborative continuum. The insufficient amount of scaffolding available to these students reduced their ability to participate in collaborative activities including learning with others, participating in authentic tasks and problems, being involved in metacognition and being involved in student-directed learning, all authentic learning requirements.

Although the facilitator continued to encourage collaboration in the learning environment the research findings suggest the facilitator could have intervened to encourage more engagement in the simulation classes and email forums. Team One for example suggested the facilitator needed to provide appropriate scaffolding in future simulation exercises to make the classroom meetings more authentic (S1, S2, S3, S4 Focus Group One). Team One felt Team Two and Three participants' behaviour (lack of attendance and late class arrival) undermined the authenticity of the team meetings task and suggested a way to improve this would be to require all students to participate in scheduled in-class team meetings (8:30am – 9:30am) every Tuesday. After these meetings they recommended teams present the facilitator with a written report of the discussions made. The students felt this was more real-to-life and there would be consequences if the reports were not forthcoming. Team One members did not

believe the other team members took the in-class team meeting seriously nor did they feel their actions reflected what would happen in a real work situation (FG1Q15).

As discussed in Section 4.2.1 (email forums) the inaction by some in the email forums, in particular S3 from Team One (three emails), S5 and S6 from Team Two (four and two emails respectively), S9 from Team Three (four emails) and S10 from Team Four (four emails) may have been because these students did not see the situation and task as real-to-life. It may have also taken away the real-to-life experience from those who did participate. The facilitator's conscious decision not intervening here, that is questioning these students directly as to why they responded infrequently, late and sometimes not at all may have compromised the authenticity of the email forums and students' authentic learning.

The facilitator set up ground rules for students to follow in the collaborative environment. They were introduced to a governance dimension; how they were expected to behave in the email forums and simulation classes (for in-class team meetings), and an administrative dimension; outlined the ultimate goals required for success in the game, and boundaries they were required to work within, specifically time frames to be adhered to for inputting team decisions and emails into the learning environment. It was the facilitator's expectation that teams be responsible for other governance and administrative dimensions, for example how agreements were to be made, how to manage participants' behaviour and relationships within the team itself; team members' roles and responsibilities, and their own achievable goals.

The facilitator monitored and protected the collaborative environment throughout the game although more could have been done in this area. As already stated earlier the facilitator did not want to intervene too much in the students' collaborative environment, it was felt this may compromise its authenticity. Rules relating to the email forum environment were re-enforced early in the game when a number of participants did not follow these requirements; see Appendix 15; the facilitator did not continue to re-enforce these throughout the game. More scaffolding could have been created to ensure teams established substantial ground rules prior to the commencement of the game. It appears that without strict supervision in this area teams did not establish these prior to the game nor did they do much during the game to protect their collaborative environment. The facilitator could have intervened (reinforcing ground rules) to encourage more participation in the email forums and simulation class in-class team meetings.



The facilitator supported students' social competence in this learning environment. Social competence has been described as the ability of individuals to establish and maintain collaborative interpersonal relations (Kihlstrom & Cantor, 2000). As has already been discussed, the facilitator encouraged students to establish and maintain involvement in the collaborative environment by setting up ground rules for collaboration and monitoring and protecting the collaborative learning environment. It was up to each team to develop these management tools further to ensure their own collaborative environments were functioning effectively. As discussed more work was needed here (by Team Two and Team Three in particular). The facilitator was also available to support teams to deal with management issues surrounding their collaborative environments, for example, team personality issues experienced by Team One. Although the facilitator provided what appeared to be sufficient support, the low number of student interactions evident by some (S6, S9, S10, S11 and S12) suggests the facilitator did not instil enough confidence in students in communicating with others, nor overcome barriers they had in working in teams.

#### **7.4 Scaffolding and managing the learning experience**

The facilitator provided students with support and guidance in relation to their learning environment. As has already been discussed these involved protocols students needed to abide by in the classroom settings, email forums and the game itself, (for example when to input team decisions). The facilitator was also available to support other issues students may have in relation to managing their learning environment. For example Team One clarification of game objectives and team management issues. This support was there to maintain and develop student motivation and ensure participation in the collaborative environment. Previous discussions question the amount of scaffolding the facilitator provided to support students' learning environment.

#### **7.5 Scaffolding and control**

The facilitator provided students with too much control in this learning environment. The facilitator relied on students to naturally progress through Murphy's (2004) collaborative six step continuum. S1, S2 and S4 struggled early on and S6, S9 and S10, S11, S12 did not appear to experience collaborative activities at all. The research shows the facilitator needed to take control of these students' learning experience to support their progression through this continuum.

Literature identified less abled learners need more structure to support their learning (Tan, Clark, Kirs). These learners according to Clark (1989) do not have task-specific learning strategies. The facilitator did not appear to provide sufficient scaffolding to support these learners in this learning environment. Although support was provided (and available to all) it came at the students' request and was of an adhoc nature.

The facilitator, as has been discussed, let teams control/manage their collaborative environments. The research findings show Teams Two and Three did not manage their respective collaborative environments well and more scaffolding appeared to be needed. This reduced students' collaborative activities and involvement in authentic learning as they had less opportunities to learn with others, and be involved in authentic tasks, authentic problems and metacognition.

The facilitator was conscious of getting the balance right in relation to scaffolding that he provided. There was some conjecture in the literature about the amount of scaffolding an instructor should provide. It was clear, however, that less abled students needed more scaffolding (Clark, 1989; Kirschner, Sweller, & Clark, 2006; Tan & Biswas, 2007). In this study support for this group was not enough inhibiting motivation and collaboration and participation in authentic learning.

## **7.6 Conclusion: Scaffolding results and discussion**

This chapter addressed the second question in this research study: What factors influence student authentic learning while participating in a marketing simulation game? The findings identified that scaffolding influenced students' authentic learning. Scaffolding helped develop students' cognitive competence, encouraged students' motivation and created and supported a collaborative environment. Scaffolding provided students with opportunities to participate in authentic learning activities. The findings suggests the facilitator could have provided more scaffolding to support less abled learners' cognitive competence early on in the game and encourage more participation in the collaborative environment.

The facilitator provided scaffolding to students prior to the game to develop their cognitive competence. This prepared students to engage in authentic learning experiences the game provided. The literature identified these as participating in authentic tasks (Newmann, 1996;

Rule, 2006; Windham, 2007) involved in authentic problems (Newmann, 1996; Rule, 2006; Windham, 2007) and metacognition (Herrington et al., 2010; Kruger et al., 2001; Newmann, 1996; Rule, 2006), learning with others (Kruger et al., 2001; Rule, 2006; Windham, 2007) and student-directed learning (Rule, 2006; Windham, 2007).

Students were introduced to the game by way of two PowerPoint presentations and introducing them to the player's manual. The facilitator also introduced students to a short quiz in the third marketing class testing students' understanding of the simulation game's marketing environment. Practice sessions were introduced in the fourth and fifth marketing classes; a review of the outcome of both practice sessions, including teams' profits, sales and brand awareness, took place at the beginning of the fifth and sixth class, by way of a classroom discussion. At the end of the practice sessions the real game commenced in week six.

To support students to get started on the right path and nurture clear communication and fruitful collaboration the facilitator in the practice session classes articulated what was expected of students in the email forums and the simulation classes (an email example document was distributed [see Appendix 3] and Marketing templates were included in email example document [see Appendix 4]) to support and direct students' thinking in relation to the marketing content required in the email discussions.

The facilitator also provided scaffolding to less abled learners, providing additional support by way of additional tips and market research information at the latter part of some classes. Additional support was also provided to Team One; the facilitator responding to this team's request for clarification on email forum protocols and team members' roles within the game.

The scaffolding that has been described enhanced students' cognitive competence and provided opportunities to enhance student motivation and interaction in the collaborative environment, both important for authentic learning (Herrington et al., 2010).

Scaffolding provided the opportunity to enhance students' motivation. According to Ryan and Deci's (2000) model an instructor has the opportunity to shift a student's level of motivation using a carrot and/or stick approach, imposing a demand and/or provide a reward or incentive. The facilitator did not impose any demands on students, just an email reminder early on in the game for them to engage in the collaborative environment (see Appendix 15).

The facilitator introduced rewards/incentives (financial rewards based on teams' weekly performances and free market research information) that appeared to excite students. There was insufficient evidence to show that these activities enhanced students' motivation however. The facilitator was mindful in providing an appropriate amount of scaffolding; he did not want to intervene too much in students' learning. It appears some demands (carrot approach) should have been included in an attempt to motivate some students to participate more in the collaborative environment (for example S6 and S9). There is no evidence to show that scaffolding provided in this learning environment had any impact on student motivation although the positive influence scaffolding had on cognitive competence suggests there may have been some influence on motivation.

The facilitator provided a collaborative feature in the game. This provided students with opportunities to participate in authentic learning activities, that is, learning with others, being involved in student-directed learning, participating in authentic tasks and problems and involved in metacognition. In addition to introducing the collaborative feature the facilitator established ground rules for students to follow to help support their own collaborative environment throughout the game.

More scaffolding could have been provided earlier in the game to better support the less abled learners. The literature identified the importance of providing less abled learners with systematic support to nurture them along (Clark, 1989; Kirschner et al., 2006; Tan & Biswas, 2007). Less abled learners required more scaffolding to enhance their self-esteem and cognitive competence. The facilitator only provided adhoc support. These students struggled with the game early on, this created barriers for them to engage in authentic learning activities.

More scaffolding could have been provided to encourage sufficient participation in the collaborative environment and potentially more opportunities for authentic learning. More scaffolding was required to encourage teams to develop, implement and manage rules and protocols within their respective collaborative environments. The data showed that not all students were involved in collaborative activities and this inhibited their ability to experience authentic learning. S10, S11 and S12 were not in teams and were not provided with collaborative opportunities. S6 and S9 were not involved in collaboration according to Murphy's criteria (Murphy 2004). The facilitator it appears did not do enough to involve

these students in collaborative activities, they were not learning with others, nor was there evidence to show they were involved in metacognition, inhibiting their authentic learning experiences.

## **Chapter 8. Conclusion**

### **8.1 Introduction**

This research study came about as a result of my fascination with the influence introducing a simulation game had on my teaching and my perception of students' learning. Students appeared to bring to this activity an excitement and energy that I had never seen in my other more traditional (lecture and tutorial style) classes. Students took on a more independent role in respect to their learning and worked together on real-to-life marketing problems. The conversations and situations the students found themselves in, evident in my observations of their meetings, appeared to be authentic experiences, as distinct from a case study text book type activity.

This research study investigated a particular marketing simulation game and the experiences and perceptions of twelve TAFE marketing students (one student cohort/class). The research study investigated the effect the simulation game had on these students in relation to their learning; more specifically it is the effect participating in the game had on students' authentic learning experiences.

This research study addressed two research questions: (1) How does a marketing simulation game support or inhibit TAFE marketing students' authentic learning? (2) What factors influence student authentic learning while participating in a marketing simulation game?

### **8.2 Limitations of the research**

Students' participation in the class-room forums was observed by the researcher and he drew on his recollections of what took place after these events, there was no data collected in relation to the content of these discussions.

Although the results of this study can be applied to other similar populations (population generalisation), for example, other exit year twelve students undertaking a Marketing course, it may not translate well if applied to mature age/adult learners studying Marketing in a part time basis, in the work place, in the classroom or in a flexible delivery mode. These student cohorts would not have the capacity, due to the part time nature of their studies to engage in collaborative activities as extensively as the students in this research study.

## **8.3 Findings**

### **8.3.1 Findings: Research Question One**

This section will address the first research question: How does a marketing simulation game support or inhibit TAFE marketing students' authentic learning?

To ascertain how the game supported or inhibited authentic learning the simulation game's tasks, the game's visual elements, the game's content and the game's player resources were investigated. There were two tasks students were required to participate in: i) participation in the discussion forums (email forums and in-class team meetings) and ii) inputting decisions into the game. These tasks contributed to the students' graded assessment. The game's design elements relate to the game's visual elements, the game's content and the game's player resources.

The findings support the following:

#### **1. Elements of the game tasks supported authentic learning**

##### **i) The collaborative feature provided opportunities for authentic conversations**

The email tasks (participating in the email forum) and in-class team meetings appeared to support students' authentic learning. The content and tone of the majority of student emails demonstrated the students took these forums seriously and took ownership of the situation. There was evidence to show these forums were used to deal with other 'real' matters beyond just strategic decision making (for example S1 raised team management issues in the forum). The facilitator observed students were engaged in the in-class team meetings and the quality of the discussions in both email and in-class forums resembled what would take place in the real business world. The data suggests these tasks appear to have provided the opportunity for authentic learning opportunities as identified in the literature, embedding learning into realistic and relevant contexts (Cunningham et al., 1993), and providing tasks that are related to the real world (Squires, 1999).

##### **ii) The decision making task satisfied authentic design requirements**

The decision making task supported authentic learning by satisfying authentic design requirements identified in the literature for authentic tasks. Involving ill-defined complex tasks whereby students have the opportunity to break these down into sub-tasks in order to

complete the activity (Herrington et al., 2010), real world relevance, resembling what would be done in the real world (Herrington et al., 2010; Meyers et al., 2008), tasks that are integrated across subject areas (Herrington et al., 2010) and providing learners with related experiences (Jonassen et al., 1998; Meyers et al., 2008).

### **iii) Tasks provided authentic assessments**

The two tasks contributed to students' graded assessment. These displayed authentic qualities as identified in the literature as important for authentic assessments. Involving the production of knowledge rather than reproduction (Newmann & Archbald, 1992), involving complex, ill-structured challenges (Linn et al., 1991; Torrance, 1995; Wiggins, 1990, 1993; Winn, 1993), involving multiple forms of evidence to measure student performance (Reeves, 2006) and producing a wide range of active responses (Reeves, 2000).

## **2. Elements of games tasks inhibited authentic learning**

### **i) The asynchronous nature of the email forums inhibited students' authentic learning**

The research data clearly identified the asynchronous nature of the email forums inhibited the authenticity of the student learning experience. Quantitative data and feedback voiced by students in the focus groups showed students having to wait long periods of time for team members' responses to their sent emails and at times the wait became endless as no responses were received. The waiting times impacted on the authenticity of the decision making task too, Team One for example described how the waiting stalled their decision making process and caused confusion as the emails did not appear to flow. The data suggests the asynchronous nature of the email forums were not in line with what the literature states should happen for authentic learning design. Learning was not embedded in realistic and relevant contexts as Cunningham, Duffy and Knuth (1993) suggest they should, nor was there an alignment between the context that was presented in the formal setting (the email forum) and real life as Bennett, Harper and Hedberg (2002) suggest should happen. Cognition according to Karagiorgi and Symeou (2005) needs to be situated in a real-world context, S1 for example did not appear to perceive the emails acted in this way. There appeared to be a disconnect between the context that was presented in the game (email forums) and real life (Squires, 1999).



## **ii) Assessment design inhibited authentic learning**

Students were assessed on their participation and performance in the email forums and decision making tasks. The design faults identified in the assessment tasks (asynchronous nature of the email forums and perception by some that the decision making task was a number crunching activity) inhibited its authenticity. The data suggests the assessments did not satisfy what the literature identified as authentic learning design requirements, that is a seamless integration with the real world (Herrington et al., 2010; Reeves & Okey, 1996; Young, 1993, 1995) and connectedness and transfer to the world beyond the classroom (Newmann & Archbald, 1992; Newmann & Wehlage, 1993).

## **3. Design elements of the game supported authentic learning**

### **i) Advice and reports provided by the game were real-to-life**

From the facilitator's perspective the "advice" and reports provided by the game were real-to-life and what a business executive evaluating the marketing activities of an organisation's business would expect to receive. They appeared to be authentic and meet the design principles identified in the literature, resembling what would be done in the real world (Herrington et al., 2010; Meyers et al., 2008; Squires, 1999), providing information students needed in the learning environment in a timely manner (Jonassen et al., 1998) and appeared to be authentic tools for students to experience authentic real world situations.

### **ii) Market research and help desk support appeared to be embedded in authentic contexts**

Data supports the notion that elements of the game's design was embedded in authentic contexts. For example students appeared to perceive the game's market research reports as authentic resources that appeared to encourage authentic thinking. They appeared to satisfy what Herrington (2010) identifies as authentic design requirements for authentic contexts, reflecting the way knowledge will be used in the real world (Herrington et al., 2010) and providing sufficient resources to enable participants sustained examination (Herrington et al., 2010). The facilitator's observation of the students' engagement with the online help desk

support facility and feedback received was that students found this to be a very authentic experience and also appeared to be embedded in authentic contexts.

### **iii) The game's scenario was perceived by most students as authentic**

Most students the data suggests perceived the game's scenario as authentic. The content and tone of emails in the email forum showed students approaching the game in an authentic way. They appeared to take on their roles as executives in charge of their organisation's marketing seriously, the majority of the emails show genuine conversations that one would have in the real world.

## **4. Design elements of the game inhibited authentic learning**

### **i) Students' poor perceptions of the game's engaging qualities; the game's scenario and technical aspects inhibited authentic learning**

Data collected on student perceptions clearly identified aspects of the game's design inhibited the authenticity of the learning environment, the design was perceived to be lacking in engaging characteristics, did not paint a clear picture for them about the game's scenario and for some participants produced technical difficulties. The data suggests these design features did not abide by the literature's recommendations for authentic learning design, that is the need to embed learning in a realistic and relevant context (Cunningham et al., 1993) and align the context that is presented in the formal setting (the simulation game in this case) to real life (Bennett et al., 2002).

### **ii) Problems with the game's content inhibited authentic learning**

The data also identified some students had problems with the game's content, for example failing to provide qualitative research information on sales representatives and customers and others not believing the game acted in an authentic way seeing it as a number crunching exercise; these perceived flaws in the game inhibited the authenticity of the learning environment. The omission of qualitative information provided students with only part of the picture (marketing information) and according to the literature this omission limits authentic learning (Grabinger, 1996; Spiro et al., 1987). The perception by some that the game was a number crunching exercise suggested they were not situated in real-world contexts something

the literature states important for learners to engage in authentic learning (Alessi & Trollip, 2001; Jonassen, 2000; Jonassen et al., 1997; Lunce, 2006).

The facilitator observed inconsistencies in the way the game's scenario was presented to students. Although this did not come up in the research as an issue it may have contributed to the students' poor perception in this area.

Some aspects of the game's resources appeared to inhibit students' authentic learning experience. For example, the market research reports were perceived by some to be inadequate and poorly explained and recommendations in the benchmark reports were perceived to be unhelpful and confusing.

Data suggests the player's manual was not embedded in authentic contexts as the literature identified as necessary for authentic learning (Cunningham et al., 1993; Karagiorgi & Symeou, 2005). S3 was the only participant that raised concerns about the quality of the player's manual, he found the manual was not always consistent with the simulation game and found the information misguided and was misleading. Others found the size of the player manual an inhibitor, the motivation to read a seventy eight page player manual prior to playing the game appeared lacking (for example S1).

## **5. Learning environment design supported authentic learning**

The learning environment's design satisfied most design characteristics identified in the literature as important for authentic learning (see Section 2.3). As identified in the data some design elements surrounding authentic tasks, authentic contexts and authentic assessments inhibited authentic learning. The learning environment provided tools to solve tasks, provided students with collaborative tools to allow them to articulate and reflect, opportunities for coaching and scaffolding, the provision of social and contextual support and provided information students needed in a timely manner.

The findings in this section identified how this marketing simulation game supported and inhibited TAFE marketing students' authentic learning. These findings will also contribute to our understanding of and answer to the second research question in this study, in particular students' perceptions of the learning environment's design and assessment's design.

### **8.3.2 Findings: Research Question Two**

This section will address the second research question: What factors influence student authentic learning while participating in a marketing simulation game?

Literature identified the importance of motivation, collaboration and scaffolding on participants' authentic learning experience. The origins and strengths of a participant's motivation can encourage or inhibit learning in an authentic learning environment such as a simulation game (Herrington et al., 2010). Collaboration is important for authentic learning (Callison & Lamb, 2004; Cronin, 1993; Donovan et al., 1999; Gee, 2007; Herrington et al., 2010; Kruger et al., 2001; McNeil, 2003; Newmann, 1996; Rule, 2006; Schultz & Kim, 2012). Scaffolding can enable students to learn in authentic environments such as simulation games so long as the balance is right. Too much support may interfere with the authentic task; too little support could result in the learner not completing the task (Herrington 2010). Motivation, collaboration and scaffolding factors were identified in this research study that influenced student authentic learning in the marketing simulation game. Without summarising all of these factors individually a more holistic approach to these findings will be presented.

The findings support the following:

#### **1. Students' perceptions of themselves influenced motivation and authentic learning**

The data revealed students' feeling of competence or self-esteem had an impact on their authentic learning experience. The mature age students from Team One, S1, S2 and S4 struggled early in the game lacking what they described was insufficient knowledge about marketing theory and the simulation game itself. This lack of confidence they had in their own abilities made it difficult for them to get into the game and had a negative influence on their participation and learning early on; this is supported in the literature: "If there is too high a level of discrepancy between our existing knowledge and new information, information may be too confusing or bewildering to incorporate" (Garris et al., 2002, p. 450). Although their competence did grow as the game progressed, from their own experiences in the game, and support provided by the facilitator. The data revealed the facilitator should have stepped in and provided more scaffolding early on to help these students engage more

with the game from the start, this is supported by Yakonich, Cannon and Ternan (1997) in the literature review (see Chapter 2) . Those that appeared to have a high self-esteem seemed to be less inhibited and were able to concentrate on the task at hand and not their perceived inabilities.

## **2. Students' perceptions of the learning environment (and simulation games) influenced authentic learning**

As has already been described the data collected on student perceptions identified aspects of the game's design and content that inhibited the authenticity of the learning environment. The asynchronous nature of the email forums and the classroom environment were also identified as inhibitors to collaboration and authentic learning. The learning environment also displayed characteristics that supported authentic learning, for example the reports and advice the game provided appeared to be authentic.

Some students came into the game with pre-conceived ideas about computer games. For example S2 commented in the first focus group that she was too old for games, S3 mentioned that all of these educational games are all the same, suggesting they all are basically number crunching programs and are not meant to be entertaining.

## **3. Factors surrounding the game play influenced authentic learning**

### **Performance in the game, learning from mistakes, time and assessments**

Data from the email forums and feedback received in the focus groups demonstrated student's drive to succeed after receiving a poor result or learning from mistakes they had made, the literature review in Chapter 2 supports this, for example (Hofstede et al., 2010; Iyengar & Lepper, 2000; Washburn & Gosen, 2001); the data also shows that the students were engaged in authentic learning experiences. There was only evidence of one student, S3 giving up the fight when both performance and time were not on his side. Contrary to this time (limited) was a factor that spurred participants on to try and give one last ditch effort to do well in the game. Both scenarios encouraged authentic learning experiences. Students displayed authentic learning characteristics as identified in the literature, that is their actions showed they were actively

participating in authentic tasks, involved in authentic problems, involved in metacognition, student- directed learning and learning with others.

Assessments in the simulation exercise influenced students' motivation and authentic learning experience. The assessments associated with the game met Herrington Reeves and Oliver's (2010) design criteria encouraging authentic learning, they from the students' and facilitator's perspective appeared to be authentic, seamlessly integrated with the learning activity. The only concern was S3's dissatisfaction with the grading of the performance aspect not its authenticity.

#### **4. The individual, team and facilitator were responsible for factors that influenced students' collaborative environment and authentic learning**

##### **The individual and collaboration**

Student individual differences identified in this research (motivation styles, perceptions of simulation games, social and cognitive competence, age and gender) helped to recognise the differences in student motivation levels. These different levels of motivation had an impact on students' respective desires to participate in the game including the collaborative environment and carry out their required roles and responsibilities and this influencing authentic learning opportunities.

The data showed a number of participants had reservations before, during or after the simulation exercise about working with others; this had some impact on their motivation and desire to participate in the collaborative environment and their authentic learning experience.

Trust is a key component of collaboration (Bardach, 1998; Hughes et al., 2002; Huxham & Vangen, 2005; Thomson & Perry, 2006), and involves trusting one another to carry out their roles and responsibilities (Hughes et al., 2002). The data showed a number of students lost trust with their fellow team members and this had an impact on their collaborative experience and authentic learning experience. There were times when team members did not carry out their particular roles and responsibilities; this included not inputting team decisions into the game, being too slow in responding in the email forums, refusing to respond at all to email

correspondence and making decisions on their own without consulting others. The facilitator also observed some participants not interacting regularly in the email and simulation classes, failing to meet one of their team obligations, further eroding trust in particular participants. On a positive note the facilitator observed some participants carrying out these obligations regularly (for example S1, S2, S4, S7). The students appeared to trust the facilitator and this appeared to encourage collaboration from students to the facilitator and vice versa. Students did not appear to trust the collaborative simulation class environment choosing to run a number of their meetings outside of the classroom.

The data relating to the collaborative environment shows there were factors that restricted knowledge sharing in this environment and others that supported it. The literature states that an individual's social and cognitive competence plays a key role in collaboration, innovation and learning. (Levin & Cross, 2004; Mayer et al., 1995) . The data suggested some students in this study were more socially competent than others and students displayed different levels of cognitive competence. There was evidence to show that the more competent students assisted other students potentially increasing all team members' competence and supported collaboration. There was also evidence to show that students supported others with encouraging and reassuring words in the email forums that may have contributed to encouraging students to engage more in the social process encouraging social competence. The facilitator provided knowledge to the students in relation to marketing theory (to enhance cognitive competence); game related information including the rules, teams' performance and hints/suggestions; and collaborative requirements in the email and classroom discussion forums.

If the facilitator in future simulations could address students' not so positive perceptions of working in groups, develop a culture of trust within the teams and enhance students' cognitive competence (enhancing their social competence may be beyond the facilitator's capabilities) this may improve students' collaborative experience in the collaborative environment (refer to Figure 6.1) and their authentic learning experience overall. Although there was some scaffolding provided by the

facilitator to enhance cognitive competence and structure each teams' respective collaborative environments, this did not seem enough.

### **Teams and collaboration**

According to Thomson and Perry (2006) those seeking to collaborate need to establish ground rules, without sound ground rules the collaborative process will be inhibited (Bardach, 1998; Mattessich & Monsey, 1992; Ring & Ven, 1994; Thomson, 2001; Thomson & Perry, 2006). Teams were responsible for establishing and managing their own ground rules to support their collaborative environment. Data revealed that Team One managed their collaborative environment well, managing their own ground rules and monitoring and protecting their collaborative workspace when necessary, whereas the other teams neglected these responsibilities reducing their respective collaborative and authentic learning experiences. The data showed the significance in having a strong team leader to lead and manage the collaborative environment. Although neither the facilitator nor the respective teams formally set this up S1 from Team One took it upon himself to lead his team. A recommendation for facilitators running similar simulation games would be to consider including this as a formal requirement to help improve all teams' collaborative environments.

### **Little or no collaboration affected authentic learning**

Three individuals S10, S11, and S12 chose to participate in the game without being in a team. They did not have the opportunity to collaborate with fellow team members and due to the competitive nature of the learning environment did not have an opportunity to discuss simulation performances generally with students from competing teams. The quality of their email discussions (S10 and S12 only, S11 made no email entries) demonstrated a lack of authenticity as all emails were directed solely at the facilitator who intentionally was only a passive observer. The suggestion for facilitators running this kind of simulation in future is to ensure all participants are placed in teams with others. The lack of collaboration had a negative impact on their respective authentic learning experiences, inhibiting one of the conditions necessary for authentic learning, that is learning with others. Without solid evidence S11's failure to make one email entry may have resulted in the fact that he had no one really to collaborate with and this experience in his eyes was unrealistic.



### **The facilitator and the collaborative environment**

The facilitator's activities supported the collaborative environment. In this learning environment the facilitator established rules for students to follow in the discussion forums. How team members were expected to behave in the email forums were outlined by the facilitator prior to the commencement of the game and re-enforced early on in the simulation game when a number of participants did not follow these requirements. The facilitator did not provide strict guidelines when it came to the in-class team meetings (face-to-face).

In relation to establishing a collaborative administrative process the facilitator clearly outlined the ultimate goals required for success in the game; these goals were outlined in the theory classes prior to the game's commencement and re-enforced in the game's player's manual and simulation classes. The facilitator also set boundaries for students to work within each week; decisions needed to be inputted into the game prior to 11:59 pm on the Tuesday (although the facilitator encouraged this activity to be done in the allocated three and a half hour class time) and individual weekly emails to team members and the facilitator needed also to be submitted prior to the 11:59 pm deadline.

### **The collaborative environment supported student authentic learning**

Despite some of the inhibitors the collaborative environment supported student authentic learning; authentic conversations were observed in both the email and class discussion forums.

## **5. Students themselves influenced the authenticity of their learning experience**

Students' attendance and participation in discussion forums, the content and tone of their email contributions, their time management skills and at times their decision to extend the game's scenario all contributed to the authenticity of their learning experience some in a positive and others less positive way. That is the necessary conditions for authentic learning as outlined in the literature (Section 2.1) were encouraged or interfered with. For example the data showed some instances when students extended the game's scenario; Team One suggested pedometers be sold with the mp3 product, and celebrity and Australian Heart Foundation's endorsements,

these sounded reasonable; however they created unbelievable scenarios about themselves including flying to the Caribbean and obtaining valuable information from a friend in the ACCC.

## **6. Scaffolding supported authentic learning although the research suggests this could have been stronger**

Findings from this research identified scaffolding as a factor that encouraged students' learning in this authentic learning environment.

- A collaborative feature was introduced into the learning environment that added to its authenticity and provided opportunities for students to enhance their learning by learning with and from others
- Support was provided to get learners started on the right path
- Students were reined in when they strayed too far

Although the facilitator was cautious not to intervene too much in the simulation exercise, the research findings suggest the facilitator did not provide sufficient scaffolding at times and in particular situations; this inaction it appears inhibited students' authentic learning in the learning environment.

- More scaffolding could have been provided earlier in the game to better support the less abled learners' self-esteem and cognitive competence
- More scaffolding could have been provided to encourage sufficient participation in the collaborative environment and potentially more opportunities for authentic learning
- More scaffolding was required to encourage teams to develop, implement and manage rules and protocols within their collaborative environments
- The facilitator could have provided more scaffolding to rein learners in when they strayed too far; for example more support for students to digest and link the player's manual with the game

The literature identified authentic learning experiences as participating in authentic tasks (Newmann, 1996; Rule, 2006; Windham, 2007) involved in authentic problems (Newmann, 1996; Rule, 2006; Windham, 2007) and metacognition (Herrington et al., 2010; Kruger et al., 2001; Newmann, 1996; Rule, 2006), learning with others (Kruger et al., 2001; Rule, 2006; Windham, 2007) and student-directed learning (Rule, 2006; Windham, 2007). The research findings suggest the facilitator needed to provide more scaffolding at times and take more control of the learning environment to enable more authentic learning opportunities for students.

This research has identified four drivers that have influenced student authentic learning; individuals, student teams, game designers and the facilitator. Individuals influenced motivation (their own and others) and collaboration; student teams had influence and control over their collaborative environment (setting up ground rules, supporting activities); game designers influenced the learning environment (including engaging games) and the facilitator had control over scaffolding and in this study some control over the collaborative environment, influencing authentic learning. To improve the authentic learning experiences for future students these drivers need to improve the respective areas they control and influence. The facilitator the research suggests needs to provide more scaffolding to encourage more collaboration and a more motivated student cohort in this simulation marketing learning environment. The simulation's game design, the data suggests, needs to be enhanced to encourage more engagement in the learning environment. The researcher has included implications for improvements in Section 8.4.

## **8.4 Implications**

The results of this research study suggest the following improvements be made to further support authentic learning in simulation games:

- Consider synchronous discussion forums throughout the learning environment to enhance the game's authenticity by making communication immediate. These forums could be face-to-face team meetings developed by the facilitator or online synchronous meetings incorporated in the simulation game. The synchronous feature it appears from the results of this study have the opportunity to embed learning in realistic and relevant contexts a requirement for authentic learning (Cunningham et al., 1993)

- Include more pre-game activities to motivate students and add to students' cognitive competence. These activities could increase students' cognitive competence by increasing their knowledge of theoretical principles and understanding of the simulation game. They could also increase student's social competence, increasing individuals' ability and confidence to interact with fellow colleagues so to establish and maintain collaborative interpersonal relations in their respective collaborative environments.
- Embed the player manual into the computer simulation game to create a seamless integration of the theory with the learning domain. This will provide a better opportunity for learners to experience authentic learning; providing authentic contexts, that is allowing the content (the manual) to be presented as it naturally occurs, situated in real-world contexts. The facilitator would need to find a simulation game that has this feature installed or commission the development of this feature in his/her own game.
- Ensure a consistent scenario is presented within the game and with all game resources including the player's manual. The research findings from this study suggest this will improve the game's ability to align the context presented to real life, providing better opportunities for participants to experience authentic learning.
- Ensure the game's support resources (including 'help' facilities within the game and market research information) provide a clear explanation for participants to follow.
- The facilitator needs to provide scaffolding that encourages an active collaborative environment and instils in teams policies and procedures to follow to manage and protect their environments.
- Ensure all participants are placed in teams with others to provide opportunities for all to experience authentic learning. Specifically providing more opportunities to collaborate, receive social and contextual support, and reflect and articulate.
- To provide more authentic learning opportunities for participants, teams playing simulation games need to appoint a team leader to be responsible for protecting his/her team's collaborative environment and to encourage all team members to participate in this environment.

## **8.5 Directions/recommendations for future research**

This research study was concerned with the learning experiences and perceptions of TAFE Marketing students in a simulation learning environment. The research has identified scaffolding to be a significant factor in influencing the authentic learning experiences of participants. The question remains, however, about the amount of scaffolding that is appropriate to keep students engaged and in charge of their own learning in a computer simulation learning environment. It is recommended that two case studies be conducted one with more instructional support than the other to determine the appropriate amount of scaffolding that may be needed to support authentic learning.

## **8.6 Concluding remarks**

There has been a substantial amount of research in the use of simulation games in marketing education, there has been little research however conducted on the student experience, including student perceptions of simulation games and learning (Brennan, Willetts, & Vos, 2008). This research study looked at student perceptions and experiences they had in a computer marketing simulation game learning environment and investigated two research questions; (1) How does a marketing simulation game support or inhibit TAFE marketing students' authentic learning? (2) What factors influence student authentic learning while participating in a marketing simulation game?

This research study shows that there were factors that influenced students' authentic learning some favourably and some impacting negatively on students' authentic learning. The research study identified four key factors (design, motivation, collaboration and scaffolding) that reduced the authentic learning experience for students and need to be improved for future learning experiences; the game's design needs to be more engaging and authentic in parts; the asynchronous discussion forums needs to be synchronous, and the facilitator needs to provide more scaffolding to enhance the student collaborative experience and encourage stronger student motivation. Facilitators choosing to incorporate simulation games into their teaching need to find a game that aligns more closely to the authentic learning design considerations outlined in Section 2.3 than the one chosen in this study to improve students' authentic learning experiences. The facilitator although adding a collaborative feature to the game; supporting authentic learning (Gee, 2007; Herrington et al., 2010), it appears chose the wrong platform (emails with asynchronous characteristics). The facilitator in this research study set up what appeared to be sufficient scaffolding however the results have shown there needed to

be more; although some embraced the challenges at times on their own, particularly Team One organising their own collaborative environment. The question is what is the right amount of scaffolding the facilitator should employ in future computer marketing simulation games to keep the learning environment authentic and not revert back to a teacher dominant setting where students become passive observers and the facilitator becomes the teacher. The researcher recommends further study in this area.

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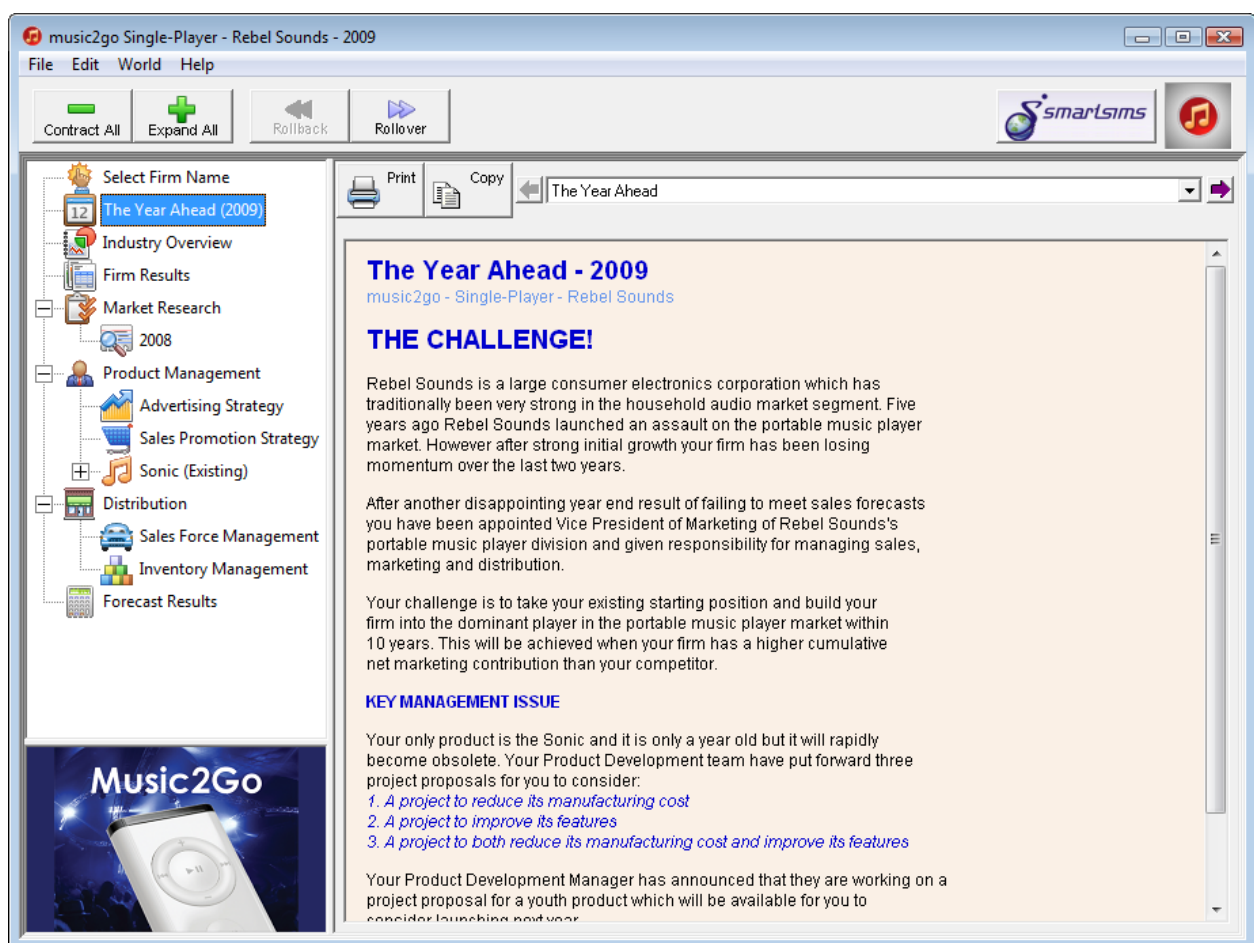
## Appendix 1: Authentic learning characteristics

Authentic Tasks	<ul style="list-style-type: none"> <li>• Taking on the role of a professional (Rule, 2006; Windham, 2007)</li> <li>• Activities going beyond the classroom Newmann (1996)</li> </ul>
Authentic Problems	<ul style="list-style-type: none"> <li>• Real world (Rule, 2006)</li> <li>• Open-ended (Windham, 2007)</li> <li>• Involved in inquiry (Newmann, 1996)</li> <li>• Relates to specifics (Newmann, 1996; Windham, 2007)</li> <li>• Reflect on what they have learned (Herrington et al., 2010).</li> </ul>
Metacognition	<ul style="list-style-type: none"> <li>• Students deciding what they need to know and learn (Kruger et al., 2001)</li> <li>• Involves metacognition (Rule, 2006)</li> <li>• Construct their knowledge and build on what they already know (Newmann, 1996)</li> </ul>
Student-directed learning	<ul style="list-style-type: none"> <li>• Instructor guides without strict guidelines or restrictions (Windham, 2007)</li> <li>• Teacher is a mentor (Rule, 2006)</li> <li>• Group work is structured (Windham, 2007)</li> <li>• Student-directed learning (Rule, 2006)</li> </ul>
Learning with others	<ul style="list-style-type: none"> <li>• Learn with others and in groups (Kruger et al., 2001)</li> <li>• Group work (Windham, 2007)</li> <li>• Engagement in discourse and social learning in a community of learners (Rule, 2006)</li> </ul>

## Appendix 2: The Game's Menu Options

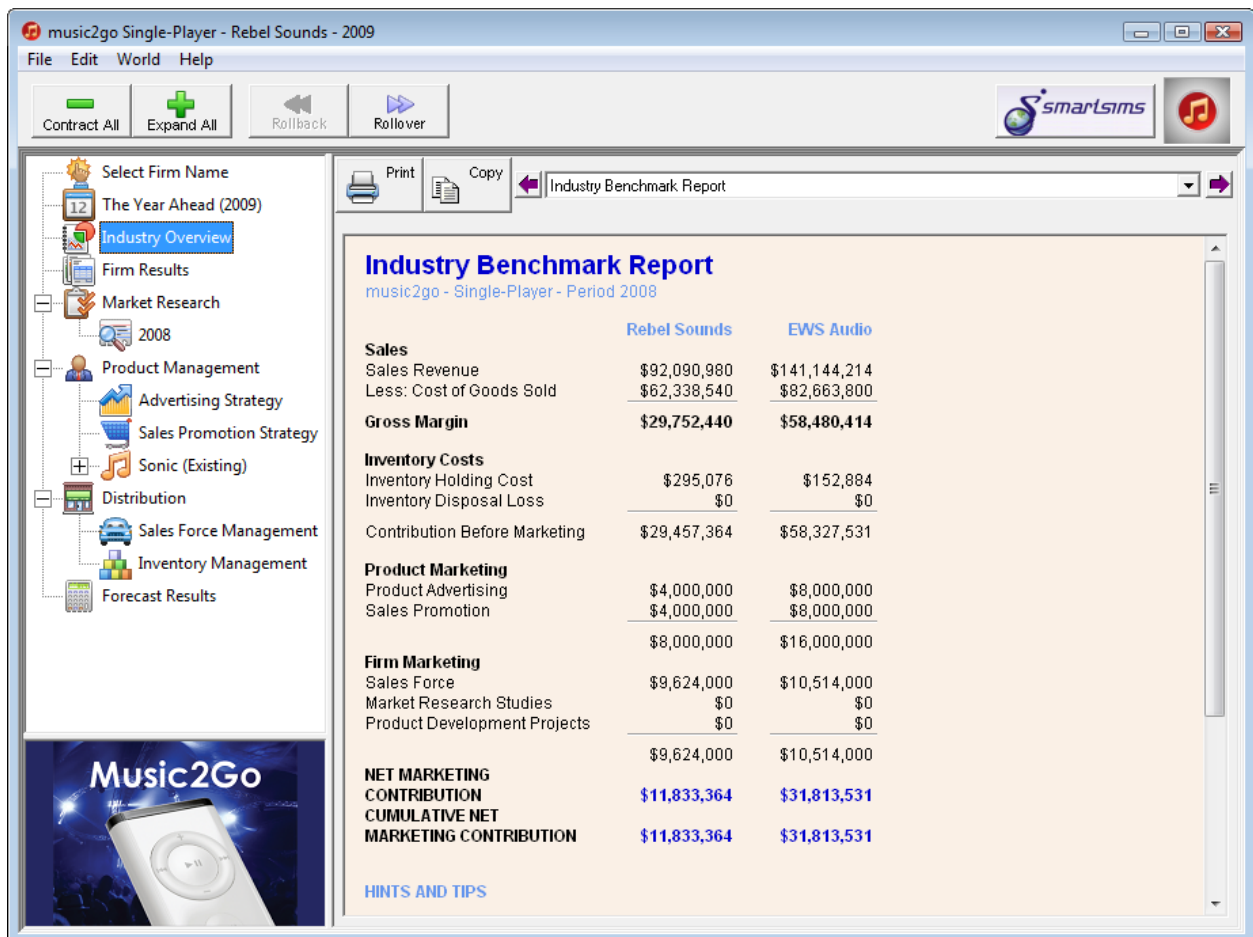
### The Game's Scenario

Students were introduced to the scenario in the first simulation year. The first screen informs students they have been appointed Vice President of Marketing for an MP3 Player division of a large Consumer Electronics Corporation. They have been given responsibility for managing sales, marketing and distribution strategies.



# Industry Benchmark Report

The Industry Benchmark report compares teams' results with other competing teams.



The screenshot shows the 'music2go Single-Player - Rebel Sounds - 2009' window. The left sidebar contains a tree view with categories like 'Select Firm Name', 'The Year Ahead (2009)', 'Industry Overview', 'Firm Results', 'Market Research', '2008', 'Product Management', 'Advertising Strategy', 'Sales Promotion Strategy', 'Sonic (Existing)', 'Distribution', 'Sales Force Management', 'Inventory Management', and 'Forecast Results'. The main area displays the 'Industry Benchmark Report' for 'music2go - Single-Player - Period 2008', comparing 'Rebel Sounds' and 'EWS Audio' across various financial metrics.

	Rebel Sounds	EWS Audio
<b>Sales</b>		
Sales Revenue	\$92,090,980	\$141,144,214
Less: Cost of Goods Sold	\$62,338,540	\$82,663,800
<b>Gross Margin</b>	<b>\$29,752,440</b>	<b>\$58,480,414</b>
<b>Inventory Costs</b>		
Inventory Holding Cost	\$295,076	\$152,884
Inventory Disposal Loss	\$0	\$0
Contribution Before Marketing	\$29,457,364	\$58,327,531
<b>Product Marketing</b>		
Product Advertising	\$4,000,000	\$8,000,000
Sales Promotion	\$4,000,000	\$8,000,000
	\$8,000,000	\$16,000,000
<b>Firm Marketing</b>		
Sales Force	\$9,624,000	\$10,514,000
Market Research Studies	\$0	\$0
Product Development Projects	\$0	\$0
	\$9,624,000	\$10,514,000
<b>NET MARKETING CONTRIBUTION</b>	<b>\$11,833,364</b>	<b>\$31,813,531</b>
<b>CUMULATIVE NET MARKETING CONTRIBUTION</b>	<b>\$11,833,364</b>	<b>\$31,813,531</b>

HINTS AND TIPS

This screen displayed the team's previous revenue and costs including:

Product advertising

Sales promotion

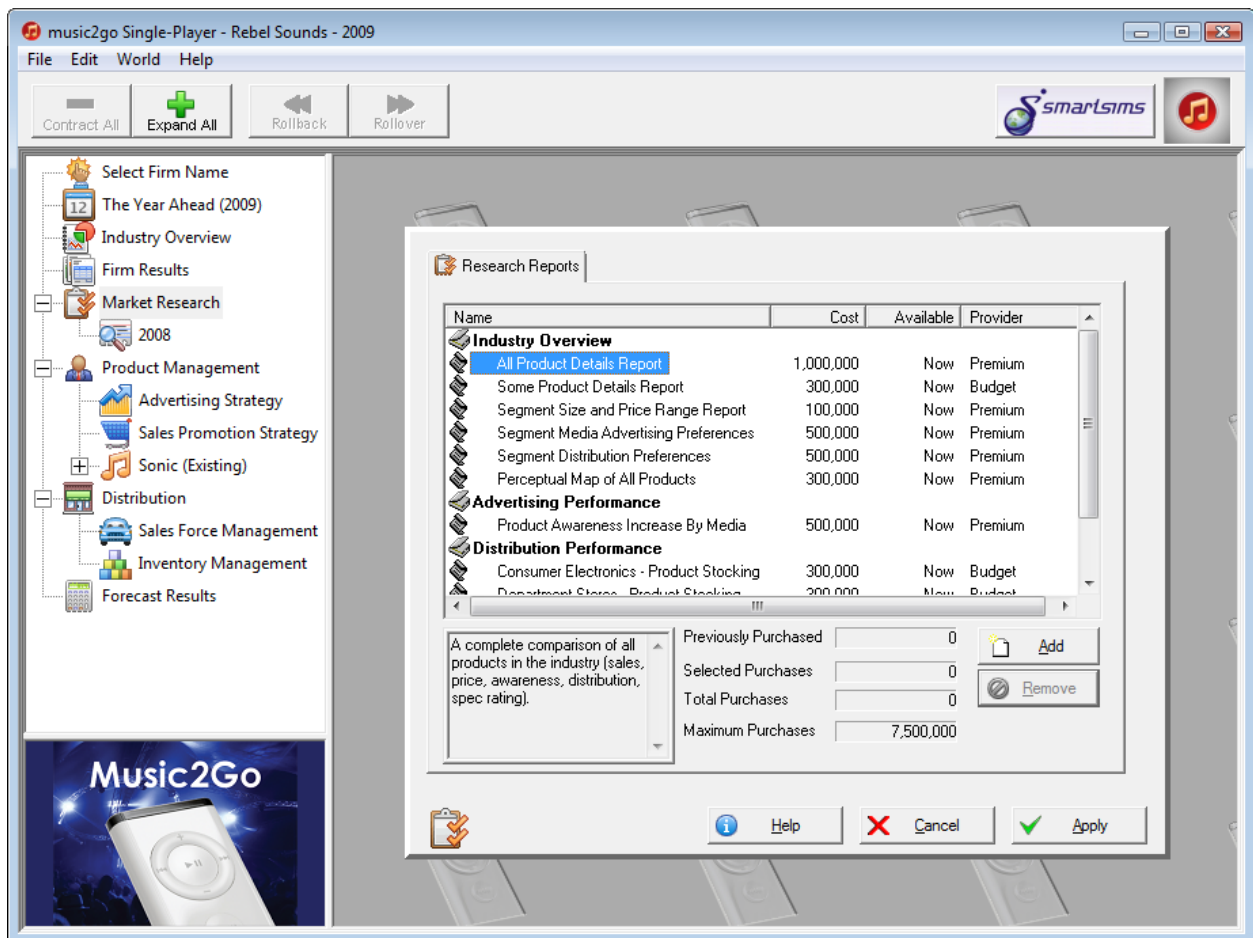
Sales force expenditure

Market research studies

The game provided hints and tips at the bottom of the screen to assist students in their budgetary decisions.

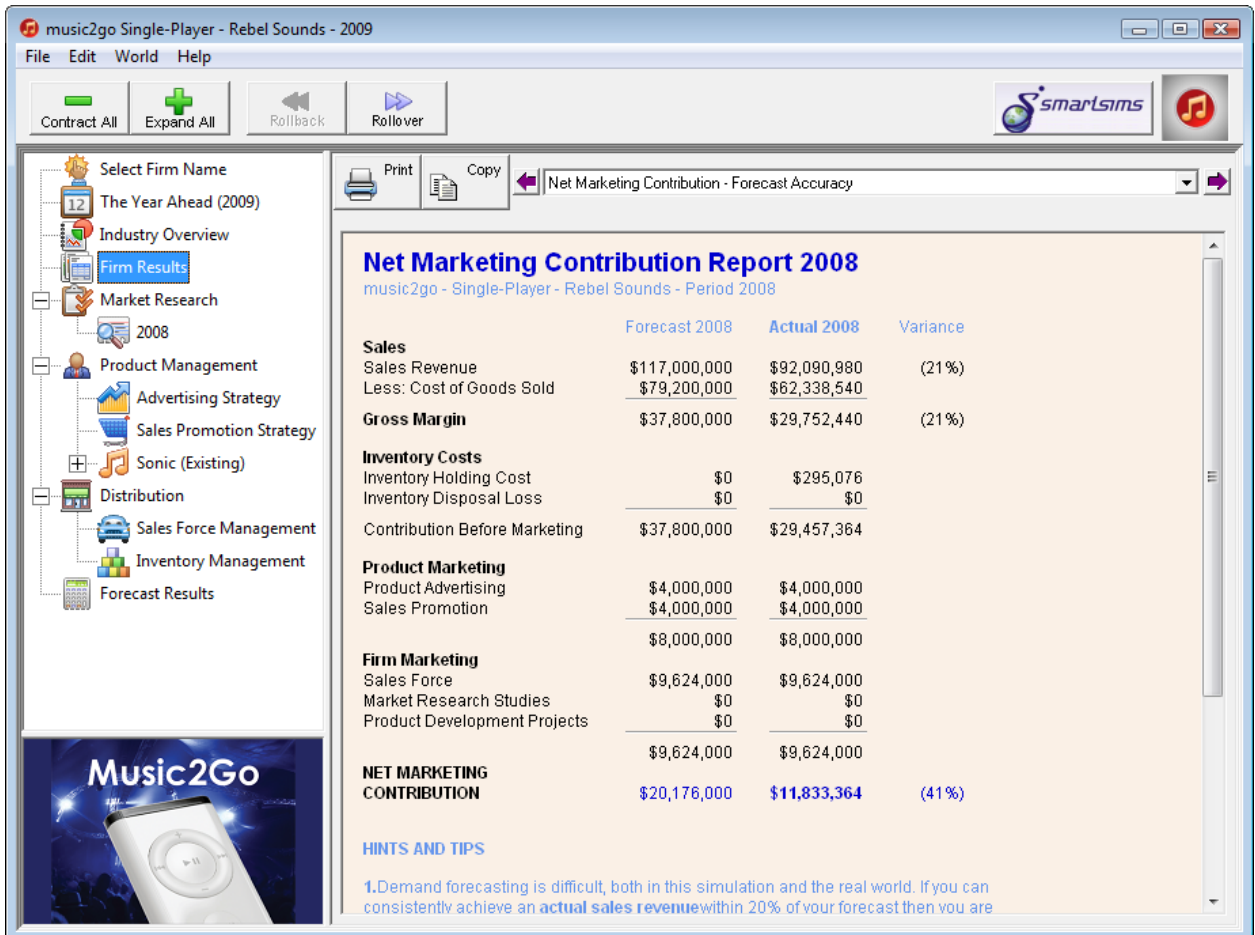
## Market Research Reports

This screen gives teams the option of purchasing some or all market research reports.



## Firm Results

- This screen provides an overview of the firm's forecast and actual sales revenue, gross margin and net marketing contribution results.



The screenshot shows the 'music2go Single-Player - Rebel Sounds - 2009' window. The left sidebar contains a tree view with the following items: Select Firm Name, The Year Ahead (2009), Industry Overview, **Firm Results** (highlighted), Market Research, 2008, Product Management, Advertising Strategy, Sales Promotion Strategy, Sonic (Existing), Distribution, Sales Force Management, Inventory Management, and Forecast Results. The main content area displays the 'Net Marketing Contribution Report 2008' for 'music2go - Single-Player - Rebel Sounds - Period 2008'. The report includes a table with columns for Forecast 2008, Actual 2008, and Variance. The table shows data for Sales, Gross Margin, Inventory Costs, Contribution Before Marketing, Product Marketing, Firm Marketing, and the final Net Marketing Contribution. A 'HINTS AND TIPS' section at the bottom provides advice on demand forecasting.

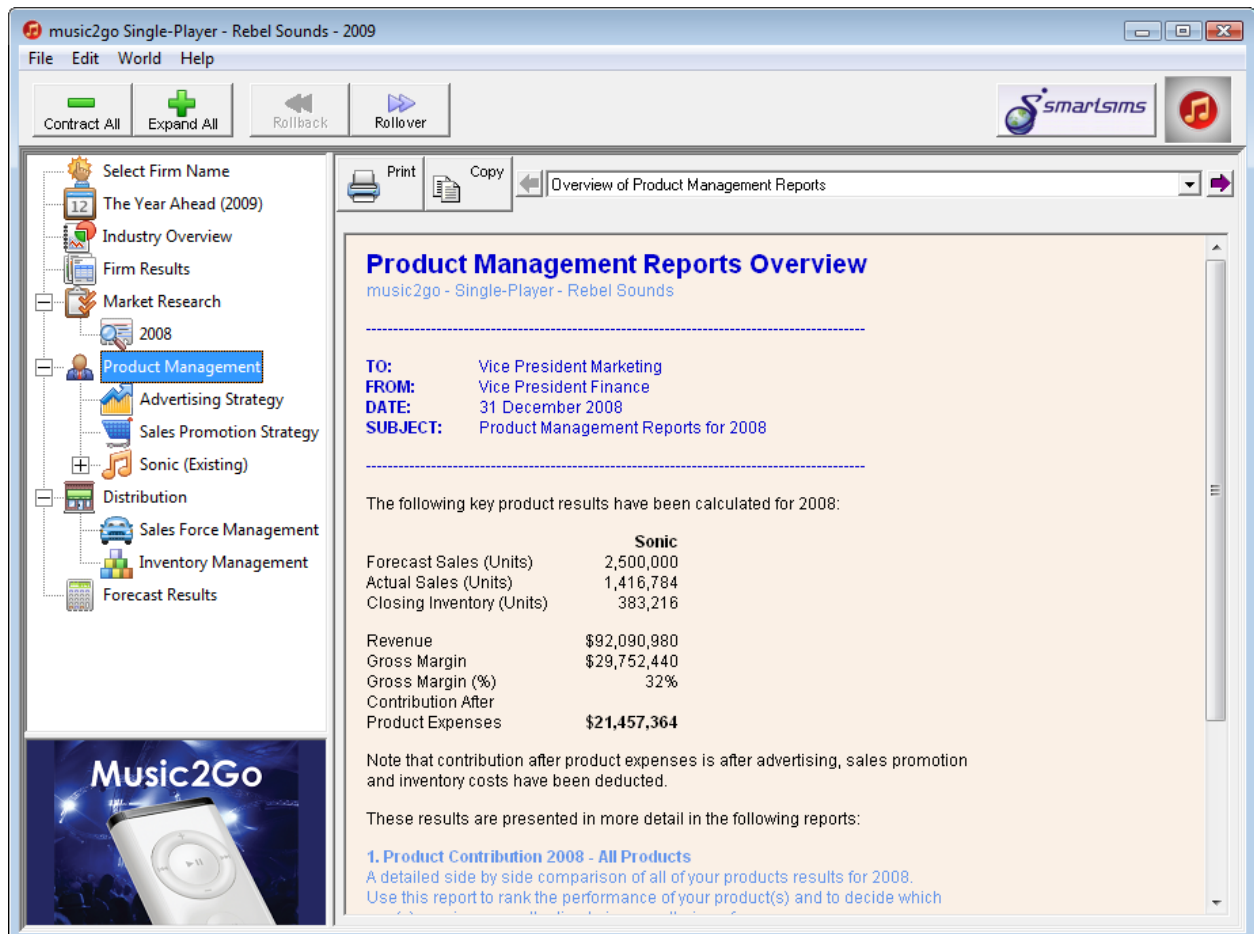
	Forecast 2008	Actual 2008	Variance
<b>Sales</b>			
Sales Revenue	\$117,000,000	\$92,090,980	(21%)
Less: Cost of Goods Sold	\$79,200,000	\$62,338,540	
<b>Gross Margin</b>	\$37,800,000	\$29,752,440	(21%)
<b>Inventory Costs</b>			
Inventory Holding Cost	\$0	\$295,076	
Inventory Disposal Loss	\$0	\$0	
<b>Contribution Before Marketing</b>	\$37,800,000	\$29,457,364	
<b>Product Marketing</b>			
Product Advertising	\$4,000,000	\$4,000,000	
Sales Promotion	\$4,000,000	\$4,000,000	
	\$8,000,000	\$8,000,000	
<b>Firm Marketing</b>			
Sales Force	\$9,624,000	\$9,624,000	
Market Research Studies	\$0	\$0	
Product Development Projects	\$0	\$0	
	\$9,624,000	\$9,624,000	
<b>NET MARKETING CONTRIBUTION</b>	<b>\$20,176,000</b>	<b>\$11,833,364</b>	<b>(41%)</b>

**HINTS AND TIPS**

1.Demand forecasting is difficult, both in this simulation and the real world. If you can consistently achieve an **actual sales revenue** within 20% of your forecast then you are

# Product Management

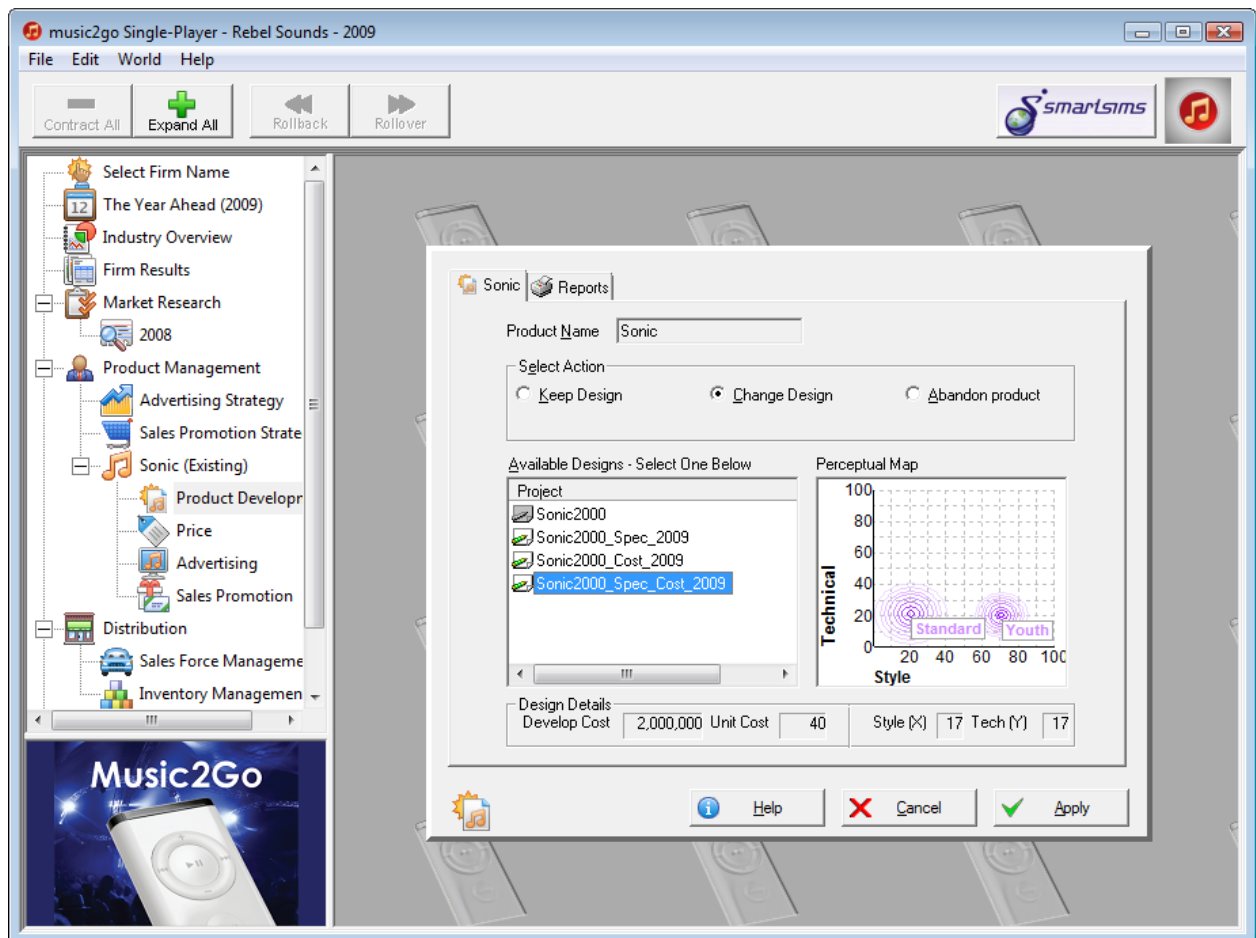
The first page is a summary of the key results and explains to the teams what the other reports are.



In this section teams can make yearly changes (or opt to keep things the same as the previous period) to following marketing mix elements:

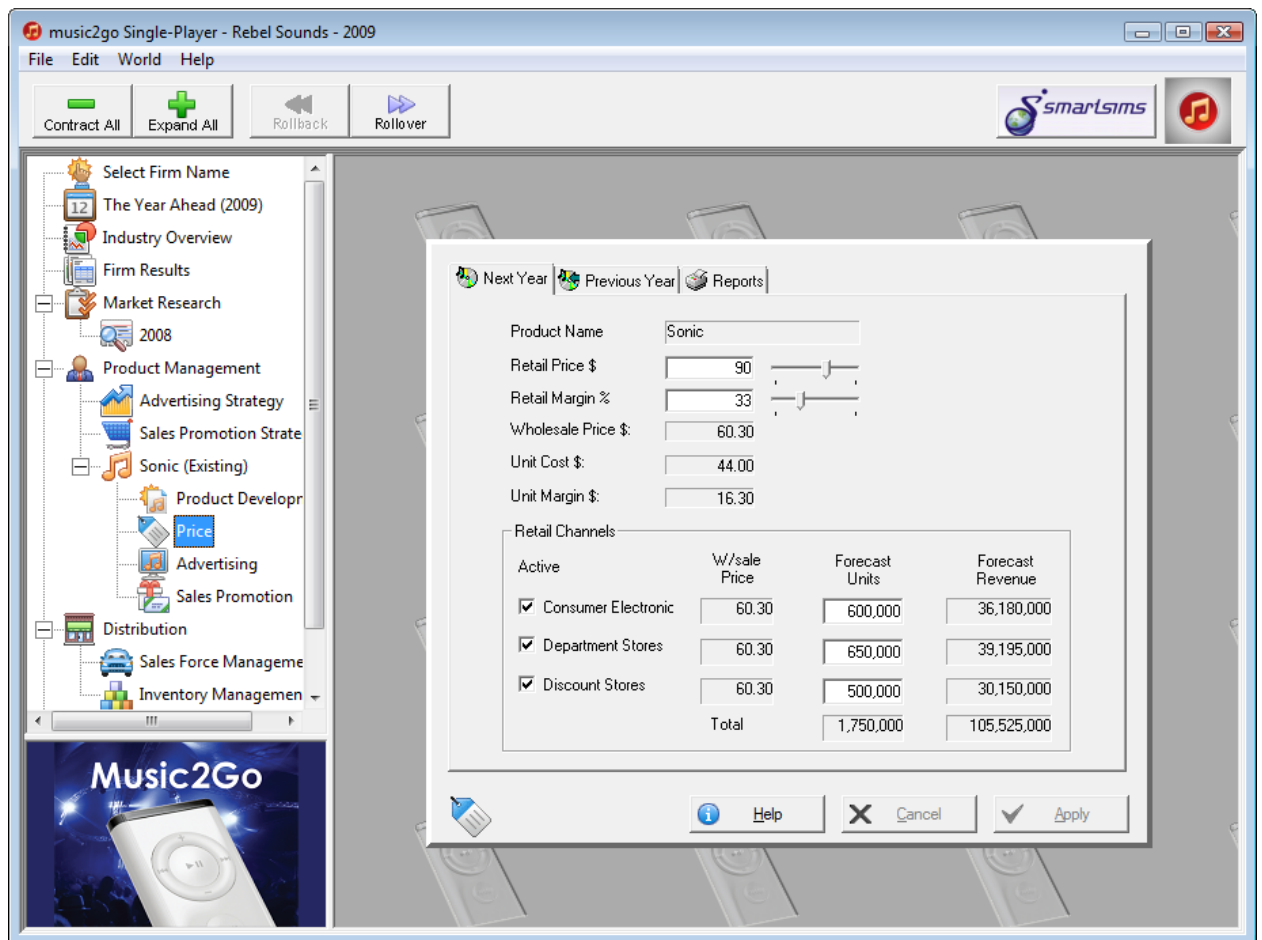
- Product design
- Price - retail price, retail margin
- Advertising
- Sales Promotion

## ○ Product design



## ○ Price

Teams can make changes to all product's current retail price and retail margin.

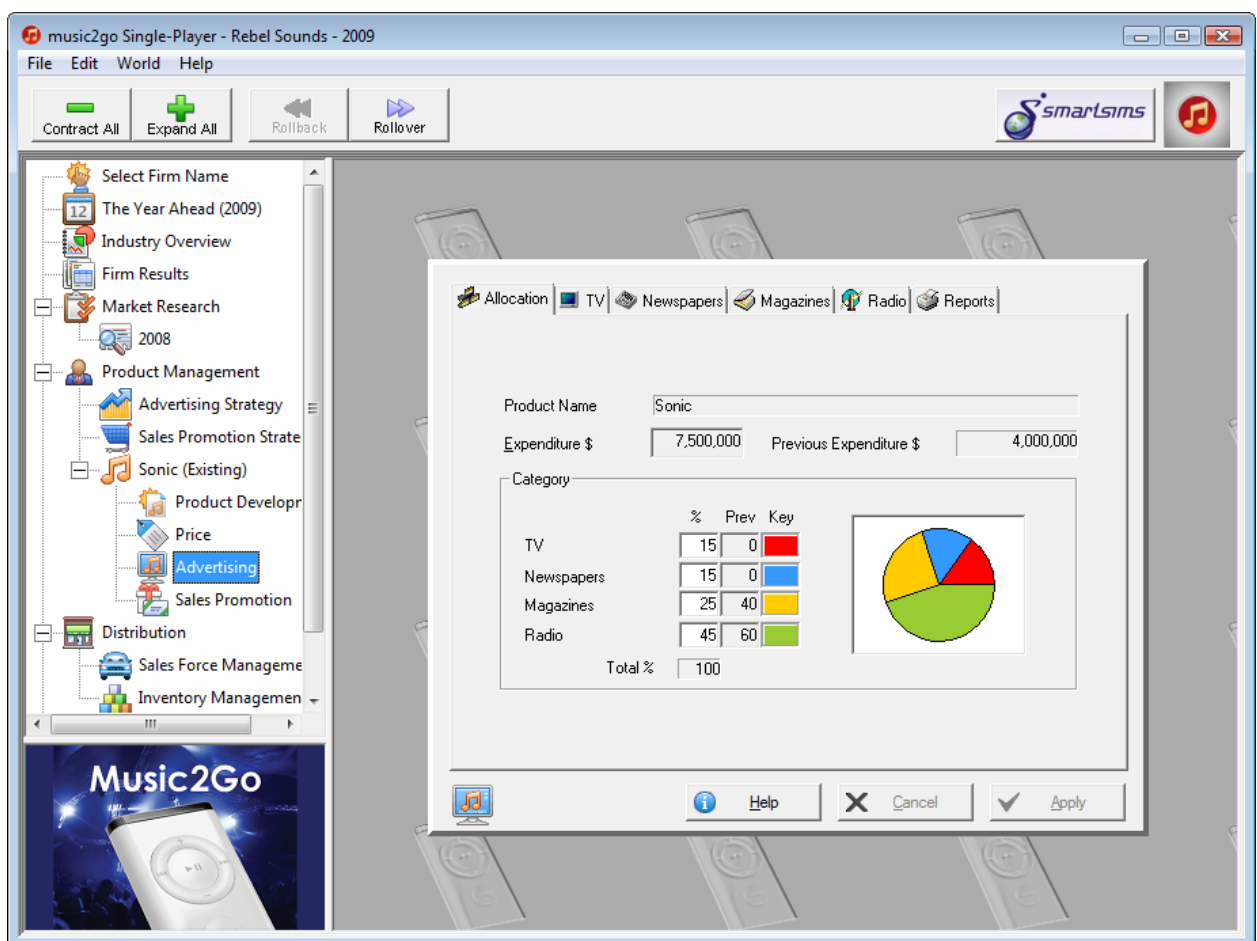




## ○ Advertising

Teams are able to set advertising spending and make decisions on allocating this spending to the following media:

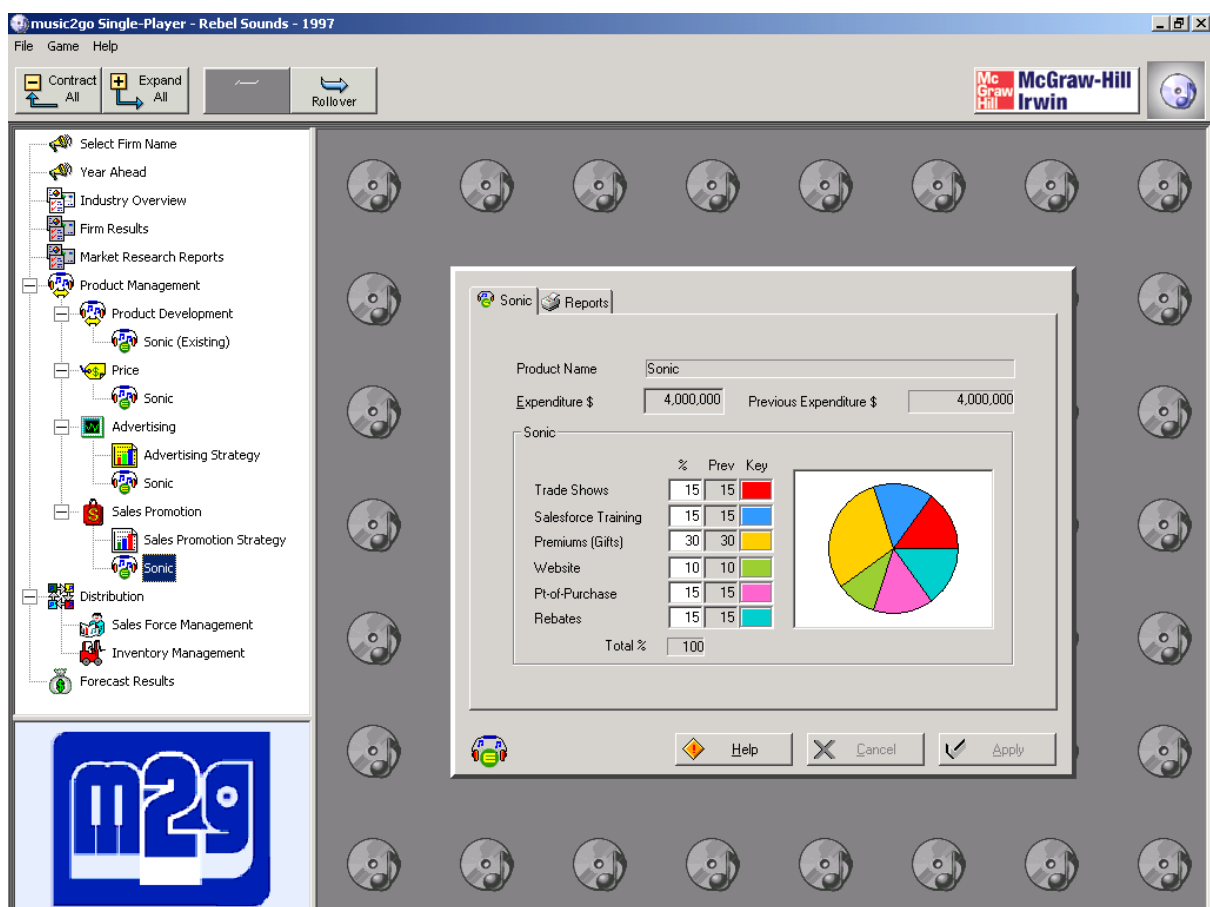
- ❖ TV
- ❖ Newspapers
- ❖ Magazines
- ❖ Radio



- **Sales Promotion**

Teams are able to set sales promotion spending and make decisions on allocating this spending to the following activities

- ❖ Trade shows
- ❖ Salesforce training
- ❖ Premiums (Gifts)
- ❖ Website
- ❖ Point of purchase
- ❖ Rebates

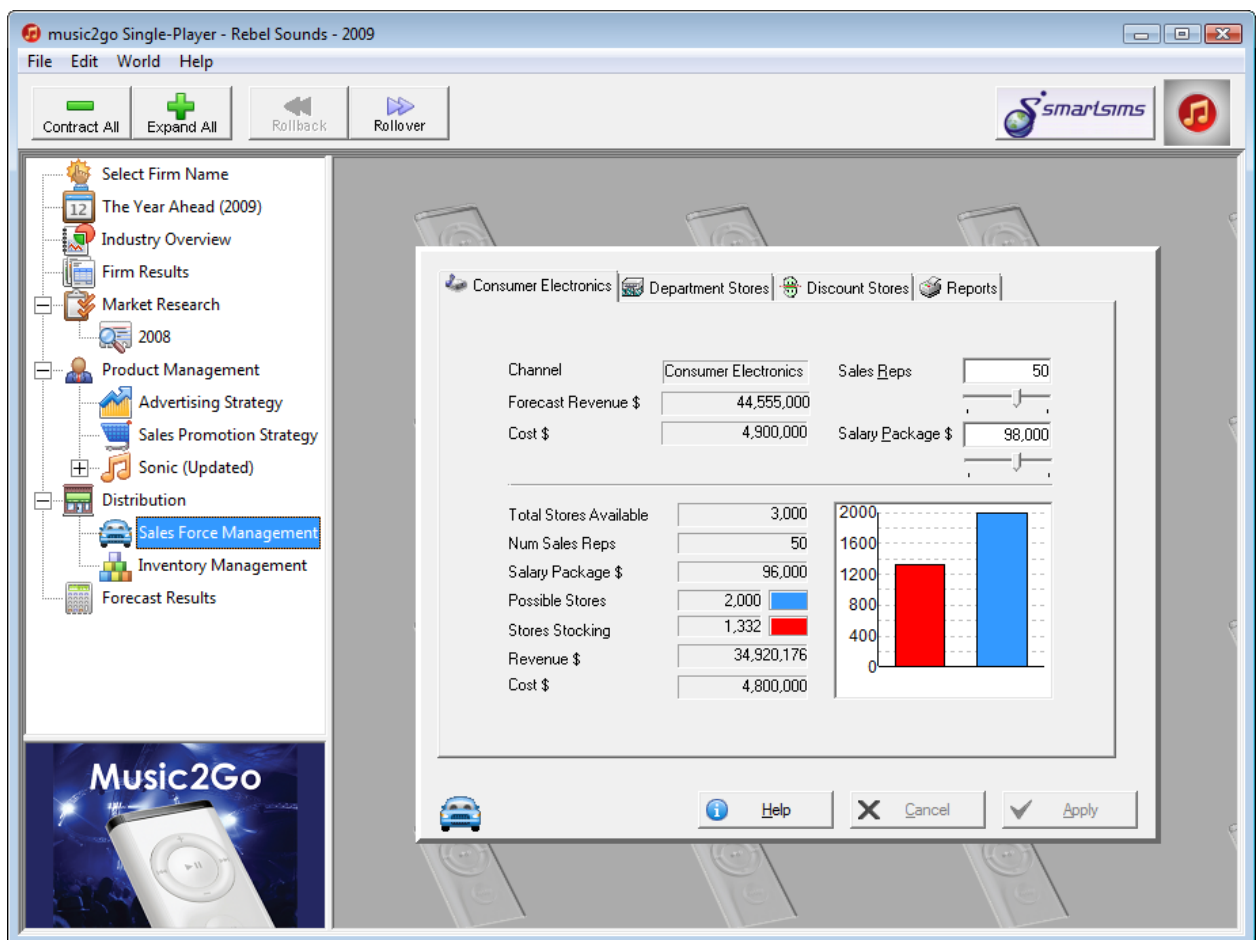


# Distribution

## Sales force management (page one – Distribution)

In this section teams can make yearly changes (or opt to keep things the same as the previous period) to following marketing mix elements for each retail channel (Consumer electronics store, Department stores, Discount stores)

- Number of sales representatives to employ for the year
- Salary package for each sales representative



## Inventory management (page two – Distribution)

In this section teams need to decide how much inventory is needed in the next simulation year for each of the firm's products.

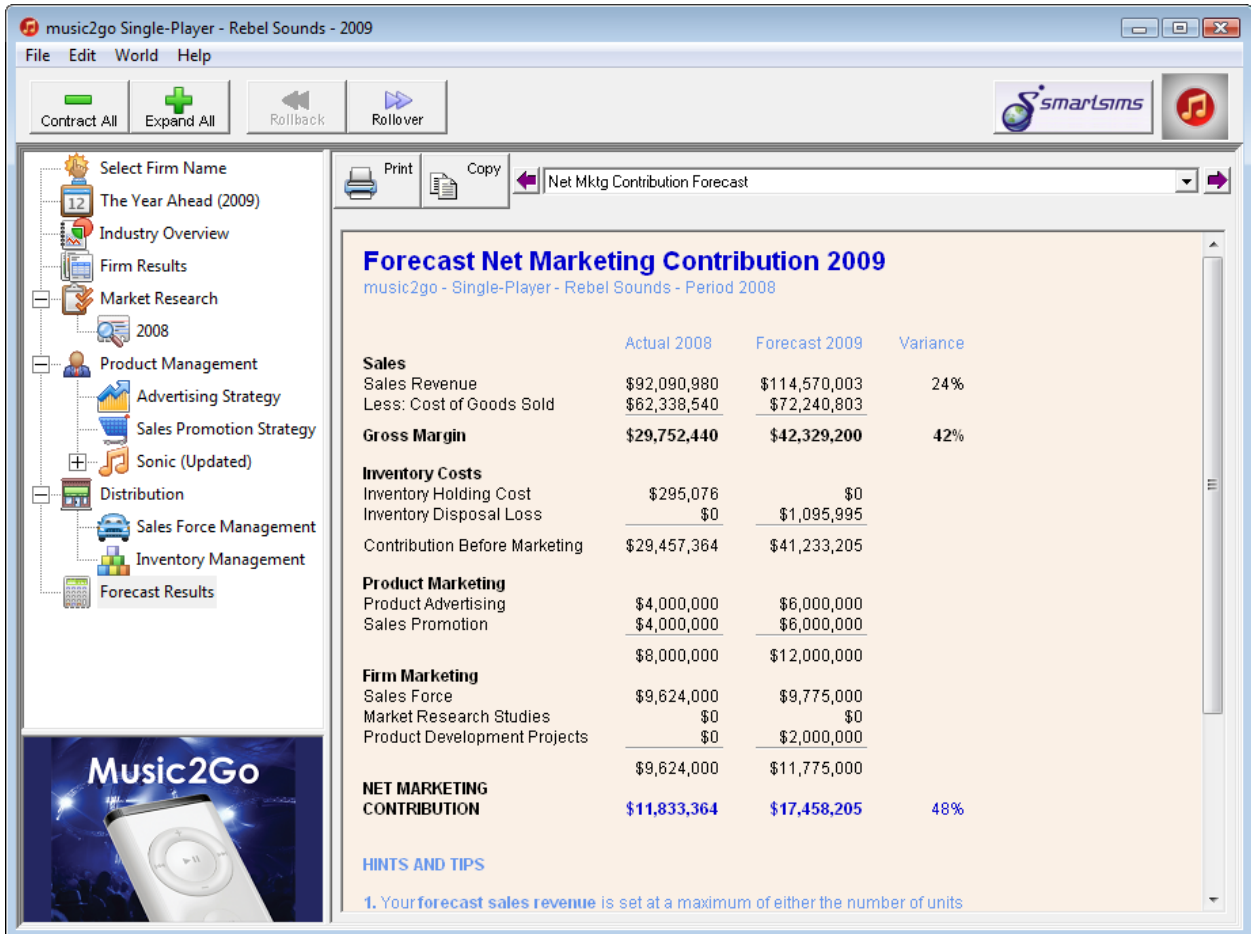
The screenshot shows the 'music2go Single-Player - Rebel Sounds - 2009' window. The left sidebar contains a tree view with the following items: Select Firm Name, The Year Ahead (2009), Industry Overview, Firm Results, Market Research, 2008, Product Management, Advertising Strategy, Sales Promotion Strategy, Sonic (Updated), Distribution, Sales Force Management, **Inventory Management** (highlighted), and Forecast Results. The main area displays a background of iPods and a central 'Inventory Management' window. This window contains a table with the following data:

Key	Product	Existing Inventory (Units)	Forecast Sales (Units)	Ordered (Units)	Expected Closing Inventory	Last Year's Sales (Units)
	Sonic	0	1,800,000	1,800,000	0	1,416,784

Below the table is a bar chart with a red bar representing the 'Existing Inventory' value of 0. The chart has a vertical axis labeled '0' at the bottom. At the bottom of the window are buttons for 'Help', 'Cancel', and 'Apply'.

## Forecast Results

This section provides teams with financial forecasts for the next year.



The screenshot shows the 'music2go Single-Player - Rebel Sounds - 2009' window. The left sidebar contains a tree view with categories like 'The Year Ahead (2009)', 'Industry Overview', 'Firm Results', 'Market Research', '2008', 'Product Management', 'Advertising Strategy', 'Sales Promotion Strategy', 'Sonic (Updated)', 'Distribution', 'Sales Force Management', 'Inventory Management', and 'Forecast Results'. The main area displays the 'Forecast Net Marketing Contribution 2009' table for 'music2go - Single-Player - Rebel Sounds - Period 2008'. The table compares 'Actual 2008' and 'Forecast 2009' values across various financial metrics, including Sales, Inventory Costs, Product Marketing, and Firm Marketing. A 'HINTS AND TIPS' section at the bottom notes that the forecast sales revenue is set at a maximum of either the number of units.

	Actual 2008	Forecast 2009	Variance
<b>Sales</b>			
Sales Revenue	\$92,090,980	\$114,570,003	24%
Less: Cost of Goods Sold	\$62,338,540	\$72,240,803	
<b>Gross Margin</b>	<b>\$29,752,440</b>	<b>\$42,329,200</b>	<b>42%</b>
<b>Inventory Costs</b>			
Inventory Holding Cost	\$295,076	\$0	
Inventory Disposal Loss	\$0	\$1,095,995	
Contribution Before Marketing	\$29,457,364	\$41,233,205	
<b>Product Marketing</b>			
Product Advertising	\$4,000,000	\$6,000,000	
Sales Promotion	\$4,000,000	\$6,000,000	
	\$8,000,000	\$12,000,000	
<b>Firm Marketing</b>			
Sales Force	\$9,624,000	\$9,775,000	
Market Research Studies	\$0	\$0	
Product Development Projects	\$0	\$2,000,000	
	\$9,624,000	\$11,775,000	
<b>NET MARKETING CONTRIBUTION</b>	<b>\$11,833,364</b>	<b>\$17,458,205</b>	<b>48%</b>

**HINTS AND TIPS**

1. Your forecast sales revenue is set at a maximum of either the number of units

## **Appendix 3: Email Example (attachment)**

You must take it in turns to lead the discussion, that is if team member one leads in 2010 team member two or three needs to lead in 2011 etc.

Prior to Tuesday's classes you need to email your team and copy your teacher into your correspondence.

Here is an example:

### **Team member one**

Hello team

2009 has brought us some success; I believe we need to continue to focus on the standard segment at this stage. From the market research we received it is apparent that we need to make more consumers aware of our mp3 brand. Other competitors in this segment have been spending more on promoting their brand.

In our promotional material we need to highlight the unique features our product has in this segment.

In 2010 we need to continue on with a market penetration approach to gain more market share in the standard segment by increasing our promotions. I don't think we should pursue any other.

Marketing tactics:

Product – I recommend we continue to sell our existing product with no adjustments at this stage, as stated earlier it is my belief that it is our lack of promotion that has caused us problems to date.

Price - In the future we could look at moving into the youth segment and go for a price penetration approach (going in at a price lower than our competitors). What are your thoughts?

For now I believe we should lower our price to ...\$ to attempt to gain more market share.

Promotion

We haven't spent anything on radio advertising; all of our promotions so far have been on TV. What are your thoughts?

Should we do anything in relation to sales promotion at this stage?

## Distribution

We are selling most of our mp3 players in department stores, I believe we need to expand into other outlets. Discount or electric stores?

## Evaluation and Control

Following 2010 we need to monitor our sales and market share as well as our net marketing contribution. I suggest we purchase the following market research information.

Please provide me with your input in relation to these ideas and recommendations for 2010.

Regards

Team member one

## **Team member two responding**

Hello team

I agree with team member one's evaluation at this stage. I do believe however that we should look at a product development approach too, that is improving our existing product in this segment.

## Price

I don't think it is a good idea to lower our mp3 price in the standard segment. We want the market to perceive our brand as a good quality product. Lowering the price will not assist us here.

## Promotion

Lets increase our TV advertising and radio, specifically on country, to increase the awareness of our brand.

We need to increase our spending on sales promotion by ...\$ to ...\$

We need more sales reps so they can service and promote our products to retailers. What do you think?

## Distribution:

Let's move into electrical stores too, this will give us more coverage.

Regards

Team member two

**Team member three responding**

Hello team

2009 was a very disappointing result.

Benchmarking ourselves against other team results we can see that product advertising and sales promotion spending by team 3 was double what we did. Their sales and market share results are significant. We need to do something to improve our promotional efforts.

Our plant capacity needs to be increased; I noticed we had a stock out last year and consequently lost sales to our competitors.

I am concerned that we are spending too much on retailer margins and need to cut back here.

Team One has spent money on market research and increase their sales force by ...\$ We should do the same otherwise we may fall behind. Should we increase sales rep salaries?

We need to spend some time on promoting in newspapers and radio. We have only spent ...\$ last year.

Let's distribute our products in all retail stores and see how this affects our performance next time.

Regards

Team member three



## Appendix 4: Marketing Plan Templates

### Objectives and Issues

Target Market 1	
Target Market 2	
Target Market 3	

### Target Markets – Describe which segment(s) you plan to target

Target Market	
Target Market 1	
Target Market 2	
Target Market 3	

## Positioning Strategy

Positioning approach	Positioning description including a positioning statement
In relation to a competitor	
According to a product class or attribute	
By price and quality	

## Marketing Strategies Ansoff's product–market growth matrix

Market penetration strategies (marketing present products to present markets)	
Promotion	
Distribution – increase coverage	
Price	

## Marketing Strategies Ansoff's product–market growth matrix

Market development strategies (marketing present products to new markets)	
New segments	
New geographic markets (local, state, overseas)	

**Marketing Strategies Ansoff's product–market growth matrix**

<b>Product development strategies (marketing new products to present markets)</b>	
<b>Product modification (replacing/adding new features)</b>	
<b>Adding a new product to an existing product line</b>	
<b>Creating a new product line</b>	

**Marketing Strategies Ansoff's product–market growth matrix**

<b>Diversification strategies (marketing new products to new markets)</b>	
<b>Concentric diversification (new, related businesses)</b>	
<b>Horizontal diversification (new, unrelated business that will appeal to existing customers)</b>	
<b>Conglomerate diversification (new unrelated business that will attract new customers, something very different to existing business)</b>	

**Marketing Tactics – 7 PS (one for each segment)**

<b>Product/service mix</b>	<b>Description of plans</b>
<b>Product breadth (number of product lines)</b>	
<b>Product depth (number of products in the product line)</b>	

**Marketing Tactics – 7 PS (one for each segment)**

<b>Price mix</b>	<b>Description of plans</b>
<b>Price vs non-price competition</b>	
<b>Skimming vs penetration</b>	
<b>Discounts and allowances (including quantity and credit discounts)</b>	
<b>Freight payments (geographic pricing)</b>	
<b>One price vs flexible price</b>	
<b>Psychological pricing</b>	
<b>Loss leader pricing</b>	
<b>Price lining</b>	

**Marketing Tactics – 7 PS (one for each segment)**

<b>Promotion mix</b>	<b>Description of plans</b>
<b>Personal selling</b>	
<b>Advertising</b>	
<b>Sales Promotion</b>	
<b>Publicity</b>	
<b>Public Relations</b>	

**Marketing Tactics – 7 PS (one for each segment)**

<b>Place/distribution mix</b>	<b>Description of plans</b>
<b>Distribution channel strategy (direct vs indirect)</b>	
<b>Distribution intensity strategy (exclusive, selective, intensive distribution)</b>	

## Evaluation and Control

Item to be evaluated	Description of how item will be controlled
(for example sales, profit, market share, budgets, marketing costs, customer satisfaction, brand awareness, benchmarking –comparing performance against competitors)	(for example your organization will review sales figures every month)

## **Appendix 5: Focus Group One questions**

Aim of the focus group: To gain an insight into the perceptions marketing students have in relation to the simulation and the impact it is having on their learning.

The focus group took place in a conference room at a Melbourne TAFE Institute on Tuesday 26th May 2009; four students participated in the focus group.

### **Focus group questions**

1. Is the simulation supporting your learning/understanding of marketing theory?
2. Is this simulation supporting classroom learning?
3. What do you think you have learned so far participating in this simulation?
4. Identify any aspects of the simulation you are finding difficult to understand.
5. As the simulation has progressed I have noticed that the “struggling teams” have started improving. What has led to this change? (question is trying to identify how students learned from their mistakes and past performances)
6. If you have been a successful team to date how did you know what to do to maintain this? (Trying to find out what the teams may have learned from their past performances)
7. Did you learn from others in your team?
8. What did you learn from your observation of competitors and the market overall?
9. Did the game itself help you to learn (from tips provided to your team, market research)
10. How did you determine whether or not your strategies had been successful?
11. What did you learn when you made changes to promotion (such as advertising, sales promotion)? / to your product?
12. Did you have clear set goals each period? If so did this assist your performance? Did you learn from this?
13. Does the simulation engage you?
14. Are you enjoying the simulation?
15. How do you feel about making team decisions and having team discussions in the discussion forums?

## **Appendix 6: Focus Group Two questions**

Aim of the focus group: To gain an insight into the perceptions marketing students have in relation to the simulation and the impact it had on their learning.

The focus group took place in the Advanced Diploma of Marketing Group's computer classroom at a Melbourne TAFE Institute on July 28th 2009; there were 7 participants.

### **Focus group questions**

1. Has the simulation supported your learning/understanding of marketing theory?
2. Has this simulation supported classroom learning?
3. What do you think you have learned participating in this simulation?
4. Identify any aspects of the simulation you found difficult to understand.
5. As the simulation progressed I have noticed that the "struggling teams" have started improving. What has led to this change? (question is trying to identify how students learned from their mistakes and past performances)
6. If you have been a successful team how did you know what to do to maintain this? (Trying to find out what the teams may have learned from their past performances)
7. Did you learn from others in your team?
8. What did you learn from your observation of competitors and the market overall?
9. Did the game itself help you to learn (from tips provided to your team, market research)
10. How did you determine whether or not your strategies had been successful?
11. What did you learn when you made changes to promotion (such as advertising, sales promotion)? / to your product?
12. Did you have clear set goals each period? If so did this assist your performance? Did you learn from this?
13. Did the simulation engage you?
14. Did you enjoying the simulation?
15. How did you feel about making team decisions and having team discussions in the discussion forums?



## Appendix 7: Questionnaire

MONASH University



The aim of this survey is to obtain your feedback on your experiences with the online marketing simulation. Thank you for your participation.

Course : Advanced Diploma of Marketing					
Please mark your responses by ticking the appropriate box.					
<b>Name:</b> <b>Gender:</b> <div style="display: inline-block; width: 150px;"> <div style="display: inline-block; width: 50px; text-align: center;">Male</div> <div style="display: inline-block; width: 50px; text-align: center;">Female</div> </div> <div style="display: inline-block; width: 100px;"> <input type="checkbox"/> <input type="checkbox"/> </div>					
Mark the response that most accurately represents your agreement or disagreement with each of the statements below	Strongly Disagree	Disagree	Agree	Strongly Agree	
The simulation supported my learning/understanding of marketing theory.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The simulation supported my classroom learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
I learnt from others in my team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The game itself helped me to learn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The simulation was engaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
I enjoyed the simulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The content covered in the simulation was interesting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The simulation was real to life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The simulation met my expectations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
I was able to work effectively online with my team to make marketing decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The simulation helped me to understand marketing concepts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
I found the teaching methods used in this simulation were effective in helping me to learn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
I was able to see the impact of my marketing decisions clearly in this simulation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The comments and feedback from team members in the email discussion forums helped my learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Overall my team members helped me learn and understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Classroom learning helped me understand the simulation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The simulation enhanced my learning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Completing this simulation was a positive experience for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**What do you think you have learned participating in this simulation? .....**

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**As the simulation progressed I noticed that the “struggling teams” have stated improving. What do you think has led to this change?**

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.....

**How did you determine whether or not your strategies had been successful?**

.....

.....

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**What did you learn from your observation of competitors and the market overall?**

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**What did you learn when you made changes to marketing mix elements?**

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**Did you learn from others in your team? Explain.**

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**Did you get more or less motivated as the simulation progressed? Explain.**

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**What were the best aspects of the simulation?**

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**What aspect of the simulation most needs improvement?**

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**Please write any additional comments or suggestions about the simulation.**

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## Appendix 8: Questionnaire and responses

The aim of this survey is to obtain your feedback on your experiences with the online marketing simulation. Thank you for your participation.

Course : Advanced Diploma of Marketing					
Please mark your responses by ticking the appropriate box.					
Name: Gender:                      Male    Female 3        2					
Mark the response that most accurately represents your agreement or disagreement with each of the statements below	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>	
<b>1. The simulation supported my learning/understanding of marketing theory.</b>	0	1	3	1	
<b>2. The simulation supported my classroom learning.</b>	0	1	3	1	
<b>3. I learnt from others in my team.</b>	0	3	1	1	
<b>4. The game itself helped me to learn.</b>	1	1	2	1	
<b>5. The simulation was engaging</b>	0	1	4	0	
<b>6. I enjoyed the simulation</b>	0	0	5	0	
<b>7. The content covered in the simulation was interesting.</b>	0	1	4	0	
<b>8. The simulation was real-to-life</b>	1	2	2	0	
<b>9. The simulation met my expectations</b>	0	0	5	0	
<b>10. I was able to work effectively online with my team to make marketing decisions</b>	0	3	2	0	
<b>11. The simulation helped me to understand marketing concepts</b>	0	1	3	1	

<b>12. I found the teaching methods used in this simulation were effective in helping me to learn.</b>	0	1	3	1	
<b>13. I was able to see the impact of my marketing decisions clearly in this simulation.</b>	0	1	4	0	
<b>14. The comments and feedback from team members in the email discussion forums helped my learning.</b>	0	3	2	0	
<b>15. Overall my team members helped me learn and understand.</b>	0	3	1	1	
<b>16. Classroom learning helped me understand the simulation.</b>	0	1	3	1	
<b>17. The simulation enhanced my learning.</b>	0	2	2	1	
<b>18. Completing this simulation was a positive experience for me.</b>	0	1	4	0	

**19. What do you think you have learned participating in this simulation?**

S2: Terminology, patience S3: How to determine how a program (simulation) based on mathematical formulas works and how to exploit it. S6: I've learned in a more practical sense what things must be done to market a product. S7: Team work is important S9: I learned how to use the knowledge from book to this simulation.

**20. As the simulation progressed I noticed that the “struggling teams” have started improving. What do you think has led to this change?**

S2: Luck S3: Luck S6: Realisation of their mistakes in the past would've helped them. S7: Luck S9: Good luck

**21. How did you determine whether or not your strategies had been successful?**

S2: Outcomes S3: Graphs, statistics S6: Comparing your statistics with others in scale disregarding how low you are on the ladder I must be looking at as well. S7: Net marketing contribution S9: From market share and profit

**22. What did you learn from your observation of competitors and the market overall?**

S2: Very competitive! S3: Some are extremely lucky S6: I learned that some of the decisions some groups made weren't that influenced on the result. S7: Increased net marketing contribution and revenue. S9: Attack the weakness of the competitors and protect strength from competitors.

**23. What did you learn when you made changes to marketing mix elements?**

S2: No comment S3: That “Government” can give and take as much money as desired and the struggling teams are punished while these performing well are given a greater advantage. S6: I learnt that sales went up or down and it effected awareness. S7: They effected the teams performance greatly. S9: Change marketing mix elements is very important.

**24. Did you learn from others in your team? Explain.**

S2: Our team was too big – too many personalities. Didn't enjoy teamwork. S3: No, essentially the game was based on experimentation, but without adequate time to explore what is best. S6: My partner (S5) was a great learning guide for me as he had a more wider knowledge and a more practical approach on things. S7: No. Didn't really get a chance to discuss things/decisions. I found that everyone was uninterested. S9: Yes, different people have different ideas get other's ideas and make better choice.

**25. Did you get more or less motivated as the simulation progressed? Explain.**

S2: More, became more competitive as results were given each week. S3: Less, we realised a lot was luck and lost interest. S6: It got quite repetitive. S7: Less. I got bored of the same routine. S9: I get more motivated as the simulation progressed, case simulation was real to life.

**26. What were the best aspects of the simulation?**

S2: No comment, S3: No comment, S6: The results and seeing what happened. S7: Brought a bit of fun to the classroom. Different form of learning. S9: Simulation to the real life.

**27. What aspect of the simulation most needs improvement?**

S2: Not to have a year in one week maybe play the game for longer. S3: Marking system, others actions affecting everyone elses marks. S6: More visual aspects such as pictures more graphs to make it more user friendly. S7: The web design is plain and boring. S9: More interesting stuff to the game like financial problem.

**28. Please write any additional comments or suggestions about the simulation.**

S2: No comment, S3: No comment, S6: No comment, S7 No comment, S9: Simulation should be more real to life.



## Appendix 9: Explanatory Statement

MONASH University



**Explanatory Statement - 2009 Advanced Diploma of Business (Marketing) Group**

**Title: Simulation learning in an online marketing unit**

This information sheet is for you to keep.

**Student research project**

My name is Jeff Skolnick and I am conducting a research project with Dr Bernard Holkner and Dr Michael Henderson lecturers in the Faculty of Education towards a Masters of Education at Monash University.

**The aim/purpose of the research**

The aim of this study is to investigate the effectiveness of simulation learning in online marketing.

**Possible benefits**

Carrying out this study will provide an insight into the effectiveness of a computer based marketing simulation model on the learning and application of key marketing concepts. The research will also provide some useful lessons for other marketing educators and other researchers interested in simulation learning.

**What does the research involve?**

The study involves audio taping, questionnaires, focus groups and the observation of teams' decision making, results and learning within the simulation and discussion forums.

For the students who agree their postings in the discussion forums will be analysed for the key issues of effectiveness of the simulation. Data pertaining to all other students and issues will be discarded, all identifiers will be removed.

The researcher is the teacher of marketing. There is no connection between your assessment and this research or the way you are taught. The research is only concerned with student's perceptions of the effectiveness of the simulation component of the course.

**How much time will the research take?**

Participation in two questionnaires (fifteen minutes each); optional participation in two thirty minute focus group interviews. For students that agree to allow postings in the discussion forums to be observed this will be for a period of twelve weeks.

**Can I withdraw from the research?**

Being in this study is voluntary and you are under no obligation to consent to participation. You can withdraw from this research at any time.

**Confidentiality**

Students will not be identified in the research. Pseudonyms will be used when the researcher writes up his report. Responses to the online questionnaires will be anonymous.

### Storage of data

Storage of the data collected will adhere to the University regulations and kept on Monash University's premises in a locked cupboard/filing cabinet for 5 years. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

### Use of data for other purposes

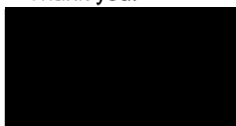
This anonymous data may be used for conference and journal publications, because it is anonymous data, nobody will be named and you will not be identified in any way.

### Results

If you would like to be informed of the aggregate research finding, please contact Jeff Skolnick on 9238 8395 or email address [REDACTED]

If you would like to contact the <b>researchers</b> about any aspect of this study, please contact the Chief Investigator:	If you have a complaint concerning the manner in which this research; 'Simulation learning in an online marketing unit' is being conducted, please contact:
Dr Bernard Holkner Faculty of Education Monash University Clayton Campus Melbourne 3800	Executive Officer, Human Research Ethics Standing Committee on Ethics in Research Involving Humans (SCERH) Building 3e Room 111 Research Office Monash University VIC 3800  Tel: +61 3 9905 2052 Fax: +61 3 9905 1420 Email: <a href="mailto:scerh@adm.monash.edu.au">scerh@adm.monash.edu.au</a>

Thank you.



Jeff Skolnick

## Appendix 10: Consent Form

MONASH University



**Consent Form – 2009 Advanced Diploma of Business (Marketing) Group**

**Title:** Simulation learning in an online marketing unit

**NOTE:** This consent form will remain with the Monash University researcher for their records

I agree to take part in the Monash University research project specified above. I have had the project explained to me, and I have read the Explanatory Statement, which I keep for my records. I understand that agreeing to take part means that:

I agree to participate in two focus groups ☐ Yes ☐ No

I agree to allow the focus group sessions to be audio-taped ☐ Yes ☐ No

I agree to complete two questionnaires asking me about simulation learning in an online marketing unit

☐ Yes ☐ No

I agree to the researcher using discussion forum postings that I have submitted to the course faculty.

☐ Yes ☐ No

(Please note for the students who agree their postings on the discussion forums will be analysed for the key issues of effectiveness of the simulation. Data pertaining to all other students and issues will be discarded, all identifiers will be removed.)

and

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

and

I understand that any data that the researcher extracts from the focus group and questionnaire for use in reports or published findings will not, under any circumstances, contain names or identifying characteristics.

and

I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party.

and

I understand that data from the focus group and questionnaire will be kept in a secure storage and accessible to the research team. I also understand that the data will be destroyed after a 5 year period unless I consent to it being used in future research.\*

**Participant's name**

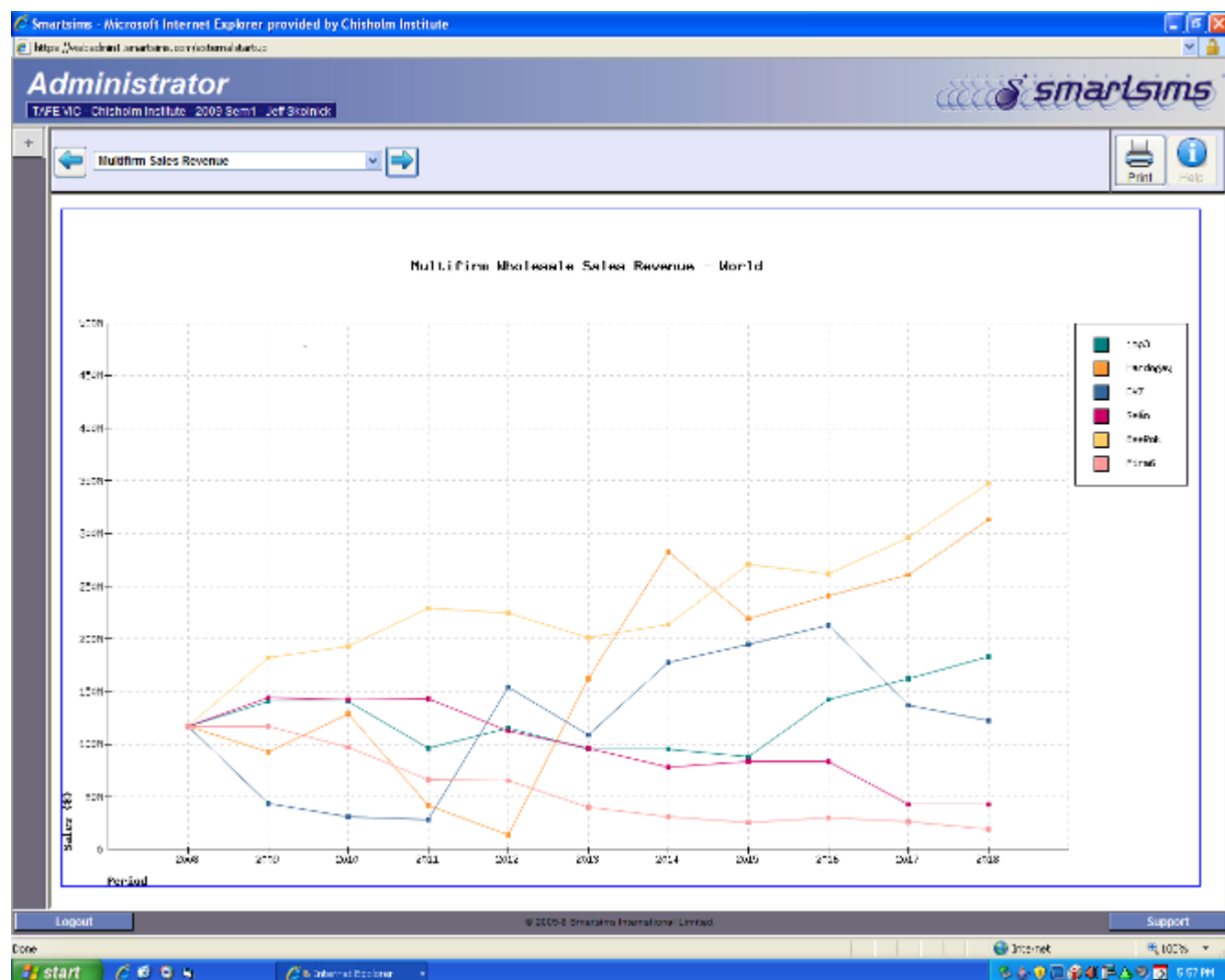
**Signature**

**Date**

## Appendix 11: Final Team Results – Multifirm Cumulative Net Marketing Contribution



## Appendix 12: Final Team Results – Multifirm Wholesale Sales Revenue



## Appendix 13: Samples of all participants emails

S1

Hi team,

It was another tough year this last year and there had to be a lot of tough decisions.

I agree that we need to pick up the spec of our Sports model as it has been in the market place for a while now and is lacking in area compared to our competitors.

As there has been a shortage of dedicated and experienced sales staff we have increased our staff numbers to try and establish further sales outlets for the products. We have been lagging behind the competitors in this area.

I also agree we needed to increase our radio advertising in the youth market and has been dealt with accordingly. As for the other changes we discussed all have been implemented and look forward to a profitable and successful year ahead.

See you all at the annual meeting. S1 email 2016

S2

Hi Team

Following on from (S4's) email, I agree that we should take a look at where we are spending our advertising budget and maybe radio isn't the right place for the youth market but, as suggested we should seriously consider a website and the sales that could be generated from that. Should we employ a consultant to look into this further or do you think this could be tackled 'in-house'? I think the website could be an exciting prospect and certainly tap into a market that we may have previously excluded.

As discussed we need to increase our advertising as this has a direct impact on our market awareness, which as we know isn't that great for our sports model - 'jogalong' (0.16).

I have mentioned before, and will do so again, that we need to increase our product specification on the sports model. It currently sits at 0.33 and we are all in agreement that our target market for the sports model are more concerned about the features on the product, with the price being a secondary concern. If we increase the specification then we should also increase the price - any suggestions?

Sales were really disappointing this year, but, I believe that we still have the time to turn this around.

I look forward to hearing your comments. S2 email 2016

S3

Hi Team

Thanks for the feedback. I too was disappointed by the poor sales this year and would suggest that maybe we look at the product specification of our latest launch. If we can increase the specification on our next order, we can achieve a lower per unit cost and, on a 5 million unit order would save \$2.5 million over our current specification price.

I agree that we should purchase an advertising report and would be interested to see the results. This may affect our decision making in the future as we have committed a large part of our budget to advertising in the past. S3 email 2012

S4

Apparently the year 2011 did not unfold as predicted but not to worry, there will be better times ahead!

Product Development – By not going along with our Product Development Manager's decision to launch a youth product and instead launch a sport product we ended up losing in the market share by 1% but gained in sales revenue

I believe it would be wise to launch a 'youth' product in this next period as there obviously a current market for it as shown in the latest graph attached below. Please let me know what you all think.

S4 email 2011

S5

Dear (Team 2),

Congratulations yet again on an outstanding year!

We have taken achieve the largest market share in our current market just as we had set out to achieve.

We now currently maintain around 30% of total market share and current revenue figures are again at astronomical figures.

With more than \$280million in one year.

However this is not all good news as our on campus strategy is to generate increased profits and gaining returns on our large marketing expenditure.

Our losses have though been reduced progressively through cut backs in promotion and sales team budgets. Inventory costs are being reduced through better forecasting and more sales volume.

Given the position of our company in terms of market share and a slowing growth rate, we are poised to generate profits into 2005 with a change in pricing strategy and the cut of overhead costs as discussed above. A 20% increase in profit margin has been projected, and even with the current costs cutting in marketing, I believe we will not lose the majority of our customers through superior product quality. Even with expected loss in total volume of units, the price increase should deliver greater returns on our current stripped down budget. Much of these forecasted figures are weighted

on the purchase of market research reports. This enables us to drive a more efficient business with continued momentum and room for revenue growth.

Discount stores a big window of opportunity with a recent surge in stores purchasing our products, we must look into sending more sales personnel in that direction for added distribution effectiveness

Best of luck team, lets look after our cash cows and make sure we continue this growth trend!

S5 email 2014

S6

Hello (Team 2),

2010 showed that our revenue increased, while our contribution was kept to a minimum. The money we invested into the existing and new products helped us with the increase in sales. We have come back on track from how the business was going, we are actually doing better than we were at the start of the smart sim game.

For 2010 we still experimented with our investments to see, which markets segments are suitable for which types of media. We have mainly focused on the youth market, and it has helped us a lot.

In 2011 we should continue to invest money into our products to develop the product aswell to advertise it. We have had the highest sales since 2008, not only showing a recovery but also an improvement, I believe we are on the right track and continue to focus on the marketing of our products.

Marketing tactics:

Our tactics are going to be staying the same because our products are still on the rise and being developed. The settings of the business are going to be the same to wait and see how the new product benefits us.

Please provide me with any input that you think is suitable to our decisions.  
Thanks S6.

S6 email 2011

S7

Hello (Team 3),

Another good year team, although we are still behind our competitors. The following things need to be evaluated and perhaps some changes made for next year?

Product:

- Specs have been increased with all of our mp3 players to keep up with our competitors, although I don't believe we need to do so with the standard



model TurboSun, perhaps we could bring that back down next year?

- After looking at the market research, our products lack the technical specifications compared to our competitors. The styling is well above the competitors, but it does not justify the price being 10% higher. Our specs need to increase or we need to lower our pricing for our mp3 players.

Price:

- Minor decreases in price will hopefully attract more consumers to buy. The price set for the standard and sports model were both at the same point. This was fixed this year with the standard model price being decreased. This will hopefully give us more sales and therefore revenue?  
The reduction in price has given us a smaller profit margin but I believe it will attract more customers and benefit DVZ in the sales department?

Promotion:

- The cut down of sales representatives has allowed us to give the remaining representatives a salary increase. We are concerned with the quality not quantity of our sales representatives; do you think this is right?
- Our overall advertising should be decreased as strong brand awareness has been achieved and allocations of our budget should be adjusted?

Placement:

- The main drive for our distribution is consumer electronic stores. We have the most sales going through consumer electronics so our tactic would be to feed the customers an ease of purchase. I believe we should continue to distribute our products to consumer electronic stores as it is clearly working for DVZ but maybe we could look at distributing a larger quantity to department stores next year with brand awareness and demand raising?

Thank you,  
Team member 2

S7 email 2015

S8

Hello team,

This year we have done a lot better. However, we are still behind our competitors. They have covered more revenue and product sales. The strategies we have implemented have not worked for the past year. More attention needs to be done in the sales department. We must get these products out into consumer's hands. Please take a look over at some of the changes I have made.

Product

We are leaving the new models and are slowly phasing out the Sonic 3. The models

we have introduced last year will be receiving an upgrade in specs and the costs will remain relatively the same.

A new standard model will be replacing it next year.

What are your thoughts?

#### Price

The price for the standard model has been decreased because it is now in a decline stage. This will allow the consumers to consider the better and new products other than the standard model.

The Sports model "SuperCharg" is priced relatively high. This shows that it is the flagship model that DVZ has to offer. It is also targetted to the adult segment.

The Youth model "TurboCharg" is priced low to allow affordability of the product for teenagers.

#### Promotion

The promotions for Sonic3 have been decreased to allow the product to be eliminated early next year.

The promotions and advertising for the other products remain the same but will not be putting much money into it as we have had a strong marketing campaign in the past years.

What are your thoughts on this??

#### Distribution

Department stores, discount stores and technology stores have all been included this time for the launch of the new products. The previous years it was not including discount stores to allow a prestige image of the item. However that was not successful. by including it this time will increase the availability to our consumers and give a better brand awareness.

This year will be a turn over and will bring us back into the game. Have confidence in our marketing schemes. We just really need to focus on our sales for the next couple of years. We have built a strong foundation.

Thankyou

S8

S8 email 2012

S9

Hello team

2010 was a very disappointing result.

Benchmarking ourselves against other team results we can see that product advertising and sales promotion spending by team (1) was more than we did. their sales and market share results are significant. we need to do something to improve our promotional efforts.

our plant capacity needs to be increased. i noticed we had a stock out last year and consequently lost sales to our competitors.

Team (4) has spent money on market research and increase their sales force by 11,000,000 we should do the same otherwise we may fall behind.

Let's distribute our products in all retail stores and see how this affects our performance next time.

Team Member S9

S9 email 2011

S10

Hi Jeff,

Sadly another week doing this from home due to a terrible cold/flu/phantom illness, have missed a full week of classes now.. so not very good. :(

i shall definitely be in next weeks class even if i have to be shunned and pushed to the corner as not to infect any others.

-----  
My reasons for changes for the year 2014 are as follows:

For my generic mp3 player (sonic4) i shall remain unchanged in all areas of the marketing mix as this model, though the classic, still maintains a steady sale rate.

As for the youth model (sonicyouth) i have decided to place more money into the advertising of the product. thus lifting its advertising budget for 8,250,000 in the previous two years to a higher 13,500,000.

Also for the SONICYOUTH model i have reduced my production cost and also reduced my retail price in an aim to gain more stores stocking the product and also more customers due to the lowered price.

After a long time contemplating strategies and predicting customer reactions: the retail price was set to \$63.00 per unit.

In an effort to simply "milk" the last sales from the market i am aiming to penetrate the market with more advertising and less changes in products to confuse customers (and also potentially lose customers).

Otherwise i have decided to leave my products relatively unchanged for this final year as next year i plan to drop the classic "sonic4" and introduce two new lines at once.

S10 email 2014

S11 – No emails provided although he continued to input decisions into the game

S12

Hello team

2011 didn't bring much success; From the market research we received it is apparent that we need to make more consumers aware of our mp3 brand as we are revive one of the lowest. Other competitors in this segment have been spending more advertising there brand.

2012 we should continue our advertise our product to increase customer awareness on our product; I also believe that we should introduce a new product into the market.

Marketing tactics:

Product – I recommend we continue to sell our existing product with but with a small adjustment to the mp3 player by giving more style and advance the technology, in doing so it will create a unique mp3 player that is in the market.

Price - in introducing the new youth segment our price will be competitive with the other product on the market however I recommend we price it just a little cheaper and go for a price penetration approach

For now I believe we should lower our price to ...\$59 to attempt to gain more market share.

Promotion

With the new youth segment introduced I recommend that we promote most of our adverting to teen magazines, TV, radio( commercial radio station which popular for teens)

sales promotion at this stage I believe we should sit back and review this option next year.

Distribution

The distribution should to be ok at this point however maybe increase our disruption to the discount stores to increases market share.

Please provide me with your input in relation to these ideas and recommendations for 2010.

Regards S12

S12 email 2012

## Appendix 14: Samples of unbelievable scenarios

I'm flying to the Caribbean again for post work drinks on Friday. The offer is open for all imp3 company executives to join.  
Last week we were able to obtain some very useful marketing information from a very high ranking friend in the ACCC, I suggest we all go along this week again."

S3 Email 2013

I have previously mentioned about a collaboration with The Australian Heart Foundation for this series, could a new 'revamped' model carry their endorsement? I shall speak to the marketing department of The Australian Heart Foundation in the next few weeks and see if we can make a presentation with this in mind.

I also think that a newer model could tie in nicely with a celebrity (a recent Olympic athlete?) to promote the product. Do you have any suggestions for this?

We do seem to be devoting a large amount of money to the Sales Promotion Dept with not much to show in gains, I agree that this money would be better spent elsewhere. If we go with the celebrity endorsement we will need to allow for this in our advertising budget.

Look forward to your replies.

S2 email 2014

The consumers are now very aware of MP3 player technology and internet savvy. Most of our customers will have done research on the product prior to purchase.

S1 email 2014

I know that (S1) suggested last year that we could look at introducing a model that contains a pedometer (for the jogger), but I believe this feature could widen our market for the sports product as we know how health conscious we have become as a nation, this range would then appeal to a wider audience. We could look at marketing the new model in conjunction with the Australian Heart Foundation? Obviously this would have an impact on our advertising budget, but I believe this to be a positive move.

I look forward to hearing your comments.

S2 email 2013

I like the sound of implementing a pedometer, I might even use it myself!  
Opening up to a new market is a good idea, it should give us the edge to take a large, growing market share.

I'm flying to the Caribbean again for post work drinks on Friday. The offer is open for all imp3 company executives to join.

Last week we were able to obtain some very useful marketing information from a very high ranking friend in the ACCC, I suggest we all go along this week again.

Kind Regards,

S3

S3 email 2013

Good morning team,

Hoping you are all well and in good spirit.

I have been on the look out for stock market results since our last company strategic changes, but due to some unforeseen circumstances, it appears that we wont have any new results for this period.

Hopefully our stakeholders will take a passable approach towards the outcome.

See you in our next meeting on Tuesday.

S4 email 2018

Hi Team members,

Sorry (S1) and (S2), I have forgotten to inform you that (S3) has not been well and therefore has not been to work. Yes we MUST definitely reduce the price of the joggalong model tomorrow.

As Anthony pointed out earlier this week that we should look at increasing our overall market share and perhaps we should seriously consider (S2's) suggestions:

- 1) Celebrity endorsement
- 2) The Heart foundation tick (if it's within our budget range -fantastic, if not, just make it appear like a red tick but don't promote it).

I would like to further discuss (S2's) previous attempt to add a pedometer count to one of our products, it sounds like a marvelous idea. Thus I seconded to apply all suggestions to gain maximum market penetration:

- 1) Celebrity endorsement- for the youth product
- 2) The Heart foundation tick (if it's not within our budget, just make it look like a red tick but don't publicise it) - For the health conscious- The standard model.
- 3) Add pedometer feature for the - the Sports product.

Furthermore, as (S2) has suggested, consumers now becoming more and more techno savvy, therefore we should decrease spending on sales promotion and spend more on internet advertising so that potential buyers will have thorough knowledge of the product prior to purchase.

Our most upfront priority is to increase our inventory, we have missed out over our heads in sales in the last period.

On a lighter note, and may be not legal, I have paid one of my friends to brag that he will have his dream purchase of our popular celebrity endorsed youth model through internet social activities. I know for a fact that he is involved in numerous social networking web sites and has over a thousand connections. Don't you think this will be a good source of WOM? We are still under negotiations and I will keep you posted.

See you at our annual meeting tomorrow.

Should we send get well flowers to (S3)?

S4 email 2014

I agree with (S2) on the Heart Foundation Tick and the celebrity endorsement (costs dependant) for increasing the appeal of the jogalong. Please let us know how we will achieve this after discussions with the various bodies.

S1 email 2014

I also thought that we were reducing the cost of the Jogalong model and if this hasn't already been done, we should certainly consider a reduction (prior to releasing an updated/increased spec version) without looking like we are losing faith in the existing model. I have previously mentioned about a collaboration with The Australian Heart Foundation for this series, could a new 'revamped' model carry their endorsement? I shall speak to the marketing department of The Australian Heart Foundation in the next few weeks and see if we can make a presentation with this in mind.

I also think that a newer model could tie in nicely with a celebrity (a recent Olympic athlete?) to promote the product. Do you have any suggestions for this?

We do seem to be devoting a large amount of money to the Sales Promotion

Dept with not much to show in gains, I agree that this money would be better spent elsewhere. If we go with the celebrity endorsement we will need to allow for this in our advertising budget.

Look forward to your replies.

S2 email 2014

Back to the more serious stuff, I hope you all enjoyed your post work drinks last Friday at the Caribbean, I had a ball and I will be posting all photos on facebook. Please let me know if you have any objections.

Hoping you will all brainstorm.

I will see you all on Tuesday.

S4 email 2014a



## Appendix 15: Reminder email

**From:** Jeff Skolnick

Friday - April 10,  
2009 9:13 PM

**Subject:** Marketing Simulation 2010

**Attachments:** email example music2go[1].doc (86528 bytes) [\[View\]](#) [\[Open\]](#) [\[Save As\]](#)

Hello everyone,

I am writing to remind you about the simulation game and your responsibilities as senior management for your mp3 firm.

2010 is approaching and you and your team need to consider your current position and what marketing strategies you need to put in place for this new year.

Think about the Ansoff Matrix growth strategies for your marketing strategies and the marketing mix (4 P's, Price, Promotion, Product and Place) your marketing tactics.

You all need to email your team members about your current performance and future directions. One team member will lead the discussion and the other team members will respond. You must take it in turns to lead the discussion.

You all have from now until Tuesday 21st April 11:59pm to send team members your emails. DON'T FORGET TO INCLUDE ME IN THIS EMAIL FORUM TOO.

I have attached an example of the kind of discussions I am looking for. This was handed out in class some weeks ago.

I hope you are all enjoying your break.

I look forward to discussing all team's performance in class on the 21st and hearing your thoughts in these forums.

Regards

Jeff Skolnick