What’s in a Question?:
The case of students’ enactments in the Second Life virtual world

Caroline M L Ho
Nanyang Technological University

Abstract

This paper draws on a study of a larger investigation involving 17-18 year old students engaged in enactive role play in the Second Life virtual world. The study is set in the context of a subject, General Paper, offered at the pre-tertiary level in Singapore to promote critical thinking and argumentation. Central to the study are the questioning types adopted by students in a simulated negotiation based on the context of globalization and its implications on an international level. Students enact the roles of lead negotiators for parties in a dispute concerning a fictitious group of islands which aimed to join the community of regional and international democracies after decades of totalitarian governmental rule. The findings based on an in-depth examination of a focused group of participants indicate a range of questioning types in evoking participant response with varying levels of assertion. Direct and rhetorical questions occur more frequently compared to those which require further work in internal processing and strategizing in the use of particular discourse features such as reformulation, internal scaffolding, indirect and mirror effect questioning types. The examination also extends to the role of questions in extended question-response sequence chains of virtual dialoguing. The pedagogical implications of enactive role play for developing students’ questioning skills are discussed.

Keywords: questioning, virtual worlds, enactive role play, Second Life

Introduction

Rapid technological advancements have led to the emergence of virtual worlds such as Active Worlds and Second Life (SL) designed to facilitate real time interaction among participants in immersive, three-dimensional (3D), multi-user virtual environments (MUVEs) (Singhal & Zyda, 1999). The potential of using virtual worlds in education to foster constructivist learning (Dede, 1995; Jonassen, 1991, 1994) which challenge students to collaboratively co-construct knowledge through active learning and social negotiation (Jonassen, 1994) has been widely acknowledged (Benford, Greenhalgh, Rodden & Pycock, 2001; Bronack, Riedl & Tashner, 2006; Webster & Sudweeks, 2006). Indeed, virtual environments have been recognized as dynamic cyberspaces that can encourage the design of innovative pedagogic practices (Bailey & Moar, 2001) to ultimately change the delivery of traditional curriculum (Hobbs, Brown & Gordon, 2006).

Virtual worlds, compared to other synchronous modes of computer-mediated communication, have the potential for enhancing the learning process in a dynamic manner, given the ‘perceptual features of the virtual environment’ (Robertson & Good, 2003:9) in the 3D images and avatar-based interaction within the spatial environment.
Participants can construct their own personalized characters and worlds (Pfaffenberger, 2001) through concrete, visual representation of avatars, props and buildings in specific scenarios, and ‘experience all sorts of things which are impossible in real life’ (Robertson & Good, 2003:9). Participant interaction with the virtual learning environment through engaging in different learning tasks provides a vicarious experience through a ‘manipulative virtual space’ (Yamashiro, 2003) whereby senses are aroused, and emotions with setting, objects and the spatial dimension in the environment evoked. Textualizing the non-verbal through paralinguistic means of communication (Ho & Ong, 2009) legitimizes the power of non-textual communication and multisensory interaction, and sharpens participant agency and involvement or engagement. Enactive role play in virtual reality through the dynamic, embodied act of being and becoming and doing can develop a stronger sense of participants’ presence (Ho, in press) through evoking reaction and engenders ‘a feeling of immersion, a perceptual and psychological sense of being in the digital environment presented to the senses’ (McLellan, 1996: 471). It is acknowledged that the sense of presence is a key feature distinguishing virtual reality from other forms of computer applications (McLellan, 1996: 471).

This study was motivated by the belief that concretizing the complex skills of critical thinking and questioning in the language classroom can be realized in an engaging manner by designing innovative, technologically-mediated learning environments for students to role play their given characters in specific contexts. After all, it is widely acknowledged that ‘at all levels of education, critical thinking and logical argumentation are arguably more challenging for students than any other basic skills’ (Ho, 2007:31). This paper draws on a larger research study (Ho, Rappa & Chee, 2009) of the SL immersive learning environment for enactive role play in the context of the General Paper (GP), a subject offered at the pre-university level (Grade 12) in Singapore which stresses argumentation and critical thinking. Enactive role play (Bruner, 1968, 1966) essentially involves ‘knowing by doing’ (Bruner, 1968), that is, knowledge comes through action. Gee (2000:188) further reinforces the notion of enactive work as an attempt to organize activities, and accord them value and meaning in ‘affinity spaces’ (Gee, 2005) in the virtual worlds of cyberspace (Lankshear & Bigum 1999:457). What is regarded as ‘real’ enactive work involves ‘creating and sustaining the configurations’ (Gee, 2000:189) through the embodied and situated approach (Varela, Thompson & Rosch, 1991) to learning.

In the traditional classroom context, students were acknowledged to generally answer teachers’ questions in class and, as Wells (1993) observes, socialized to interact
with the instructor rather than their peers. Students would not wish to appear foolish and would avoid giving a negative impression by asking ‘stupid’ questions in the presence of their peers in class (Brain, 1998:¶8; Leary & Kowalski, 1997:175). This study, in providing students the opportunity to think in role and play out specific characters assigned in the virtual world without teacher intervention, seeks to encourage students to generate their own questions and responses as they engage with each other in the virtual enactments.

The examination in this paper focuses primarily on participants’ questioning types in relation to their purpose and role in the dialogic process of virtual enactment as it was observed that participants employed a range of questioning types in their virtual dialoguing. The paper begins by considering the dialogic process of learning and engagement, and, in particular, the place of questioning in relation to argumentation which provide the theoretical thrust to the study. A review of studies in the field then follows after which background context to the study and the research focus are provided. The design of the SL learning environment and methodology are then presented followed by findings and discussion of the study. The pedagogical implications of the findings are discussed at the close of the paper.

**Dialogic learning and questioning in argumentation**

A situated, dialogic perspective of learning informs the investigation in this study. Situated learning is recognized as the process of knowledge construction through dialectic conversations among students who hold various perspectives (Brown, Collins & Duguid, 1989; Lave & Wenger, 1991; Pilkington, 2004; Wilson & Myers, 1999). Dialogic learning involves ‘learning through the interweaving of separate reasoning minds in verbal interaction’ (Baker, 1993:4) where the emphasis is on ‘reasoning in dialogue’. This draws on Bakhtin’s (1981) notion of ‘dialogic imagination’ with arguments arising out of the play of a multiplicity of voices. Argument, when viewed as dialogic, provides for ‘the possibility of agreement as well as dissension, to recognize that one’s argument develops through engaging with and negotiating others’ views, and …acknowledging and representing another’s viewpoint as well as one’s own’ (Morgan & Beaumont, 2003:150).

The role of questions in driving the dialogic process of thinking and discussion is acknowledged to be critical (Elder & Paul, 1998; Wang, 2005). Questions are recognized as essentially ‘expressed request for information’ (Blanchette, 2001:¶2). Hunkins (1995:114) specifically identified questions as ‘complex linguistic structures designed to engage individuals cognitively and affectively in processing particular contents’. Different types of questions demand different levels of cognitive processing and learning
(Grabowski, 1996). Wu (2006:347) noted that ‘strategic uses of questions can also serve ideational and text-organizing functions’ as they convey both ‘rhetorical and evaluative meanings in context’. Question could be used ‘to create dialogic space’ (Wu & Allison, 2005:125). Further, questions forms ‘orientate [readers] in a certain way to the arguments presented’ (Hyland, 2002:532), and work to ‘establish a particular relationship, draw readers into an argument and manage their understanding of an issue’ (Hyland, 2002: 554). This study examines the role of questioning types in students’ enactive role play with a focus on the type and range used to evoke a particular response or exert a targeted influence on others through the SL immersive learning environment in the context of the GP.

The interest in the investigation centres on students’ questioning in real time in relation to the dialogic nature and process of virtual enactments as students engage in the exchange of different perspectives. There is an increasing recognition of the significance of strategic questioning in the social and dialogic process of reasoning (Tindale, 1999; Walton, 1998). The approach to this study is influenced by a sociocultural view of language (Wells, 1999) with language as a ‘cognitive and cultural tool used in dialogue to support the construction of shared knowledge’ (Coffin, Painter & Hewings, 2006:466). Viewed from a constructivist approach which emphasizes interactive tasks (Jonassen, 1991;1994), the focus of engaging students through their virtual enactments is on ‘creating real-world environments for problem solving’ (Cox, Carr & Hall, 2004: 184). The SL virtual learning environment designed for this study is a valuable platform for investigating how students learn through the interactive process of a simulated negotiation to develop a better understanding of the real-world problem of globalization with its associated political, economic and social implications on an international level.

**Review of studies in the field**

The review begins with studies on questioning before attention turns to virtual worlds as learning environments.

**Studies on questioning**

Research literature revealed that studies on questioning types were observed to revolve largely around classroom instruction, predominantly from the teacher’s point of view in traditional classroom roles. Early studies investigated the balance between referential (information-seeking which the questioner does not know) and display (Long & Sato, 1983) questions (where the questioner knows the answer before hand), with findings resonating Sinclair and Coulthard’s (1975) secondary classroom context in the

In foreign language learning contexts, David’s (2007) study of English as a Second Language (ESL) Nigerian teachers’ use of display and referential questions on teacher-pupil interaction at the secondary level showed that display questions were used more (85%) than referential questions (15%) with the latter creating less classroom interaction than the former (87.6%:24.4%). Similarly, Shomoossi’s (2004) investigation of the effect of Tehran university teachers’ questions on EFL students’ achievement indicated that display questions were used more frequently than referential questions, and that not all referential questions could create enough interaction. Hussin’s (2006) work on questioning in the Malaysian context revealed the majority of low-level, factual questions which did not encourage critical thinking. National curriculum requirements in critical thinking were mismatched with how teachers actually taught in terms of posing questions. Brock’s (1986) examination of the effects of referential question on ESL classroom discourse highlighted the role of such questions in getting learners to produce language and to create discourse which facilitated a student-to-teacher information flow.

Studies have also distinguished low-level thinking questions such as literal with obvious intent and where answers can be lifted directly from text (Cruickshank, Bainer & Metcalf, 1995; Muijs & Reynolds, 2001) and convergent which are fact-based and deal with data (Ornstein, 1995; Moore, 1995) from high-level questions such as divergent (Ornstein, 1995; Moore, 1995; Kauchak & Eggen, 1998) and inferential (Frazee & Rudnitski, 1995). Studies on teachers’ questioning in language classrooms have also drawn on Bloom’s (1956) taxonomy. A UK case study (ITT KS3 Key Stage 3 resources, 1997-2009) of teachers’ questioning of teenaged students revealed that boys were twice as likely to be asked questions than girls, and four times more likely to be asked open, explorative and analytical questions than girls who, in contrast, were asked closed questions which predominantly tested lower order, less complex recall skills. The study underlined the need for questioning to be kept central to the learning process, and for teachers’ specific questions to be built into their short term plans with questions escalating to facilitate higher order thinking based on Bloom’s (1956) taxonomy.

While other categories of teachers’ questions focused on individual questions as in open and closed (Blosser, 1973; Carr, 1998), productive (Elstgeest, 1985), operational (Alfke,1974) and questions based on mental operations (Koufetta-Menicou & Scaife, 2000), these were predominantly in the Sciences domain. In these content-based contexts, attention was also focused on the need to scaffold student thinking and help students
construct content knowledge (Chin, 2007). Frameworks designed aimed to show how questions are ‘related via strategic discourse moves that work purposefully towards the teachers’ ultimate teaching goals’ (Chin, 2007:839) and included questioning approaches comprising Socratic questioning, verbal jigsaw, semantic tapestry, and framing (Chin, 2007: 815).

Many of these available studies centred primarily on teachers’ role. Other studies sought to question the conventional teacher/questioner and learner/responder demarcation (Lynch, 1991) with a call for a reversal of these roles with more question types to which answers may not be known. Indeed, it was acknowledged that ‘if classroom input is to become optimally comprehensible, it should no longer be the teacher’s sole prerogative to ask questions’ since the ‘scope and purpose of questions should extend beyond mere student display and teacher evaluation’ (Pica, Young & Doughty, 1987: 754) with greater initiation and participation from learners. This was also where studies on technologically-mediated argumentation with a focus on stimulating questioning among learners showed attempts to develop students’ skills in generating questions.

Most available question generation systems (Brown et al., 2005; Rus, Cai & Graesser, 2007), in developing automated computer-mediated tutoring, focused primarily on Bloom’s (1956) Taxonomy of Educational Objectives in moving from the lowest level of cognition (thinking) to the highest level of cognition (or from the least complex to the most complex). Nielsen et al’s (2008) taxonomy of questions based on human tutoring dialogues in six disciplines for the development of an intelligent tutoring system adapted taxonomies from Graesser and Person (1994), Lehnert (1978), Collins (1985) and Bloom (1956), for content instruction in eliciting understanding of topic and procedure involved. The question types comprised method, explanation, comparison, rationale and description.

Other studies on questioning skills in technologically-mediated environments recognized the significant role of questioning in facilitating the dialogic process of learning. One such study by Wang (2005) in examining questioning skills to facilitate online synchronous discussions showed the impact of skilful questioning on students’ intellectual ability in the process of knowledge construction in online discussions. This included increased student participation, development of multiple perspectives and student engagement in higher order thinking (Wang, 2005:303). Morgan and Beaumont’s (2003) work in investigating chat rooms using a dialogic approach to argumentation showed qualitative gains in students’ argumentation in terms of justification of reasons, logic in argumentation, focus and detail in quantity and quality. It was observed that students’
questioning and group discussion…. led to the shaping of their opinions, and their exposure to the arguments and justifications of others’ (Morgan & Beaumont, 2003:155). Blanchette’s (2001) investigation of questioning skills in computer conferencing in an asynchronous learning environment indicated that participants exhibited higher levels of cognition which stimulated more interaction. Callahan, Clark and Kellough’s (1995) study at the middle and secondary levels in schools reinforced the significance of questions during discussion, noting that the most distinctive feature was that questions posed were ‘open for discussion rather than closed for answer’ (Wang, 2005:305).

Although these earlier studies pointed to the potential of technologically-mediated environments for developing students’ questioning skills in relation to the process of argumentation, they remained predominantly within the textual mode of the traditional realm of computer-mediated environments, namely, online forums, email lists, bulletin boards and electronic conferences.

**Virtual worlds as learning environments**

The potential of virtual worlds as viable platforms for learning have attracted much interest. Yamashiro’s (2003) case study of students’ virtual role-play of a Maui legend showed their interaction with the environment and with each other as they recreated the legend based on their interpretation, knowledge, imagination, creativity, and reflection of the culture. Interactive role play in virtual reality engaged the students in active and integrative learning, extending beyond declarative knowledge to higher-order thinking. Robertson and Good (2003) examined the effects of a virtual role-play environment, *Ghostwriter*, on characterization in children's imaginative writing. The gains for students included positive effect on characterisation in stories in terms of relationships, particularly through dialogue (p.26), and at a greater degree compared to traditional writing (p.13). Qualitative gains were noted in descriptions of the moods of the characters, relationships between characters, and portrayal of characters’ personalities (p.13), indicating a certain level of engagement with the writing activity. Brown’s (2009) scenarios in online role play in a web-based virtual school provided students the opportunity to engage in deeper levels of critical dialogue.

The Straits Times (2009: B5) reported of virtual worlds gaining in popularity with schools in Singapore with teachers recognizing the interactive nature enabling greater class involvement and participation, and shyer students ‘opening up more than usual, … because they are more comfortable’ compared to speaking up in class. Virtual role play was ‘not limited to a few minutes of class, but rather…prolonged over time for really getting into the part’ (Edwards, Dominguez, Rico, 2008:3). This carried the potential ‘of
heightening student motivation levels through intensive, all-encompassing simulation exercises’ as it ‘pushes far beyond traditional uses and takes on dimensions of simulating reality from a holistic perspective’ with participants ‘acting and reacting to multiple forms of situational context with other avatar learners’ (Edwards, Dominguez, Rico, 2008: 3). This process built up learner responsibility as ‘students become actively involved in the formative process which personalizes their learning needs and wants’ (Edwards, Dominguez, Rico, 2008: 6).

Virtual worlds were realized as ‘persistent, avatar-based social spaces’ that enabled participants to engage in ‘long-term, joint coordinated action’ where ‘cultures and meanings emerge from a complex set of interactions among the participants’ with an ‘intense degree of coordinated action and co-presence among players’ (Thomas & Brown, 2009: 2). The idea of a ‘network of imagination’ tied together notions of community, technologically mediated collective action, and imagination, when players begin to act through joint investment in the pursuit of common ground’. This collective action required that ‘problems be thought of as group problems and that the goals of all actions and practices are to move the group forward’ (Thomas & Brown, 2009: 4).

Not all available studies were tied to a contextualized topical focus as with the simulation revolving around the theme of globalization in this study in order to fulfill curricular goals. Indeed, the focus on topic-related discussion (Im & Lee, 2004; Knowlton & Knowlton, 2001) as examined in this study had been acknowledged to be of value for more productive and effective use of synchronous discussion for instructional purposes. There is room for further investigation into the specific role of questioning skills in the dialogic process of learning, particularly in new dynamic learning environments as with virtual worlds designed for educational contexts with an explicit thematic focus. Overall, existing studies surfaced the characteristic features of virtual worlds as dynamic platforms for learning over computer-mediated chats that went beyond merely the novelty of participation in the interactive, digital spaces. Indeed, as will be unpacked in this study, virtual dialoguing in SL stimulated students’ questioning skills through the focused and sustained engagement in enactive role play.

**Background**

This study involved pre-university students in enactive role play in the SL virtual environment to identify and solve conflicts related to the issue of globalization in the context of the GP. The study was set within the regular college GP curriculum with a focus on argumentation and critical thinking skills. The GP was classified a Knowledge Skills subject at Higher 1 (H1) level for broadening purposes for university level studies
(Ministry of Education, UCLES, 2005). It played a critical role in the pre-tertiary curriculum with a mandatory pass in the subject to secure a full Advanced (‘A’) Level certificate. Students were required to ‘convey a sustained and well thought-out argument’ (Ho, 2006:3) and to show awareness of current issues on local and global levels. For students in multi-ethnic Singapore, this challenge was even greater, given that English was not necessarily the dominant home language for many. Official records showed that English was the home language for 37% of Chinese children, 44% of Indian children, 9% of Malay children and 10% of the remaining ethnic group (Others) between the ages of five and fourteen (Singapore Department of Statistics, 2005:28). A student’s GP performance reflected not only the candidate’s language ability but, more significantly, the individual’s level of readiness for tertiary study as it involved critical skills of logical and intellectual argument demanded at higher education.

Research focus
This paper sought to determine the specific questioning types of students as they engaged with each other in the SL virtual environment. Specifically, the paper aimed to identify the different questioning types adopted by participants and the purposes they fulfilled in specific contexts. The interest was in uncovering the range of questioning types used to evoke participant response and the types which were used more frequently compared to others which were less evident. The investigation also extended to examining the role of questioning in an extended question-response sequence chain in the virtual dialogic space. These areas of investigation would offer pedagogical implications of enactive role play for developing students’ questioning skills.

Second Life virtual environment
SL is an immersive virtual environment developed by Linden Lab (Linden Research Inc., 2008) for enactive role play. It comprises an online virtual world for its ‘residents’ to create their own personas through customized avatars and to interact with each other in cyberspace. The rich interactive digital environment provides specially-developed tools for designing a virtual world for participants to construct artifacts and buildings, and to explore and engage in individual and group activities. A virtual private island was acquired by the researchers and a monthly maintenance fee paid for the island for staff and students of the participating school to gain access to the virtual world.

For this study, a ‘YouTopia’ private island (Figure 1) was developed within the teen grid of Second Life for 13-17 year old teenagers. ‘YouTopia’ suggested to students that a perfect or ideal society could be created by themselves. The outcome in their world rested
in their power to enact how they wanted things to be based on their own perspectives and beliefs.

![Figure 1 Screen shot of YouTopia island](image)

Within YouTopia, a context was developed for virtual enactment through a series of scenarios (Ho, 2007). Each scenario carried a distinct conflict which was played out in the enactments. The various stakeholders had their own individual agendas regarding the problem at hand. Students analyzed each complication in terms of the stakeholders’ personal interests, and examined the concerns raised by the relevant parties affected by the particular situation. The goal of negotiation was to reconcile the differing stakeholders’ interests equitably, given the constraints of each context.

The scenarios based on the context of globalization involved students in groups of four or five members representing five interest groups (sample role card, Appendix) of a fictitious group of islands, the Waga Waga Islands (WWI). These interest groups comprised the WW native peasants, women’s peasants, International Monetary Fund (IMF), a non-governmental organization (NGO), and a multi-national corporation (MNC). The newly democratic WWI, after decades of totalitarian government, proposed to join the community of regional and international democracies. A conference by the World Trade Organization would be organized to decide on the parameters that should be imposed in the process of embracing globalization in order to address the needs and interests of various groups on WWI and to ensure sustainable development of the country’s economy.

Students participated in two rounds of enactive role play sessions over the six-week intervention. This paper focuses on the first round of a seventy minute enactment where members from the five different parties worked to forge an alliance and raised questions
about resolutions offered by other alliances. This was the first exposure for students to the topic of globalization which would involve these novice participants in the SL enactments.

Figure 2 Screen shot of SL enactive role-play session

The second round of enactment required students’ drafted resolution to be submitted for members of opposing alliance(s) to question or critique, after which the original resolution was amended.

Subjects

The subjects comprised two classes of forty five seventeen to eighteen year old final-year pre-university male and female students from the Arts and Science streams in one pre-university college with average to low ability in the GP subject (mean of standardized test scores was 51%). The majority of the students were from families with a predominantly middle to low income background residing in a typical public housing neighbourhood in Singapore. The college, a ‘Lead ICT’ institution, identified by the Ministry of Education to spearhead ICT-mediated pedagogic initiatives, had agreed to participate in the study with all classes informed of the project focus on enhancing GP students’ skills in argumentation and critical thinking though technological mediation in immersive virtual
environments. Class response to the open invitation was obtained through a voluntary polling system. The two classes were selected based on the highest number of students who opted in. Parents and students provided informed written consent for participation. The study adhered to the research ethics guidelines of the university. Students had no prior experience with SL. Neither were they prepared beforehand for a focus specifically on questioning skills in the enactments. The select group of four students identified in this paper was based on their contribution across the targeted scenarios in terms of the range of questioning types and the linguistic features exemplified, and, for consistency, their virtual roles enacted. Student’s extracts from virtual enactments cited in this paper were quoted verbatim. The first name of each participant was the student’s chosen name (names changed to preserve anonymity) followed by the second name, YouTopia, which is common to all participants, hence, Khan YouTopia.

Methodology
Logged transcripts of participants’ interactions were saved in text format using the SL feature (Figure 3) and Open Source Camstudio was used for all screen activity recordings of the enactive role play sessions.

Twill YouTopia: may i ask if the IMF wishes to form alliances with any other organizations?
Khan YouTopia: we would also be trying to ally with the women’s peasants association
Khan YouTopia: this is because we also seek for equal gender rights
Twill YouTopia: ok great
Twill YouTopia: we wish to work with them too
Khan YouTopia: we propose to do this by creating more jobs for women in those customer service, or light office work

Figure 3 Extract of logged text from SL enactive role play

The researchers began first with an examination of the questioning types which were adopted by students in their virtual role playing. The focus was on identifying the range of questioning types for various purposes and contexts, and in categorizing the types identified. The categorization of questioning types was carried out independently first by the researchers and then cross-checked with each other for uniformity in classification. Frequency counts of specific questioning types were recorded in raw and percentage figures. Exemplification of the various categories were examined with an elaboration of the role of the questioning type in the specific context. Questioning types were realized linguistically in different ways. Attention also focused on specific discourse features which captured the various questioning types. These were highlighted and noted by the researchers. Underlining of specific features in the transcripts was to draw attention to the targeted forms by the author, and not the students. An examination was also carried out of
the role of questioning types from an extract of extended question-response chain or sequence in the virtual dialoguing. The data-driven approach to research taken in this study with a more grounded (Glaser & Strauss, 1967) orientation to the tagging of the data was advantageous in this investigation over the adoption of a fixated, existing or available analytical framework. Given the new media environment of this study within which the researchers and participants were working, the inductive and interpretive approach allowed for a ‘growing understanding (to) develop in such a way that it is driven by the data’ (Dick, 2000) collected, and provided ‘some protection against the biases and preconceptions which researchers and others inevitably bring to the research situation’ (Dick, 2000). The focus essentially centred on what was directly generated and emerging from a specific learning context of participants in real time interaction which evolved over time, rather than from a pre-defined select set of features from the data.

**Questioning types in enactive role play**

Specific questioning types employed by students in their virtual enactments for different purposes were identified. These were elaborated as follows.
**Figure 4** Overall questioning types in enactive role play

**Direct (General and Specific)**

Direct questions were literal, factual or information-seeking elicitations. Figure 4 showed that they ranked highest in terms of frequency of occurrence. 21% of the overall questioning types were Direct Specific, that is, they were pointed in eliciting particular information on points raised as with the MNC delegate question cited here, who had earlier promised the WWI natives ‘i am here to help u all out of poverty’:

Ned YouTopia: what resources does your country have, excluding agricultural product?

to which the WWI native responded:

Guan YouTopia: people are our resource; we have a huge labour force who are cheap and hardworking.
The MNC delegate required specific information in order to assess the situation of the WWI for appropriate plans to be executed which would indeed attempt to pull the natives out of poverty.

In the next example, the Direct Specific question on subsidies posed by the MNC delegate

   Vale YouTopia: and what subsidies can IMF provide?

was triggered by the IMF officer’s earlier assurance that ‘Please do not worry, the taxes will not be high’ for the company.

This further prompted the IMF officer to provide a specific response in explicitly stating the nature of the subsidies:

   Jave YouTopia: alright, IMF will provide subsidies for your MNC to train the labor.

This is critical to forwarding the ultimate goal of the IMF, that is, ‘we are opening up Waga Waga island economy’.

   Information which was deemed to be critical to facilitate decision-making and in influencing outcomes were zeroed in specifically by participants through Direct (Specific) questioning. This was a specific type of direct, pointed questioning which elicited information specifics and content detail on particular aspects. Specificity in detail and explicit information required as in eliciting particular content information for decision-making in order to form alliances or confirm proposed resolutions accounted for the use of Direct Specific questioning in the virtual enactments.

   Direct General questions, at 18% (second highest), were broad and open-ended in initiating discussion. The WW female peasant in the following posed an open question to the MNC right at the outset of their dialogue:

   Guanleng YouTopia: how can you all help us in any way?

The WW female peasant required information from the collective group (‘you all’) of the entire MNC on the plans which the MNC proposed for her natives. The nature of the help was also not narrowed down to any specific domain but kept open-ended with the all-encompassing phrase ‘in any way’. This was a trigger for information from the MNC which would enable her to assess the intentions of the foreign company with respect to her people’s needs and situation.

   In the next, the MNC delegate initiated dialogue with the IMF officer by posing the following question with the lexical item ‘anything’, eliciting information from the IMF on their intent, without limiting the question in specific ways to obtain the information desired:
Ned YouTopia: is there anything your association hopes to have from us?
The use of open-ended lexical items such as ‘you all’; ‘any’ as in ‘anything’; also in ‘any way’, ‘any problem’, aimed at generating response and information freely without being constrained within specific boundaries. This appeared to be a characteristic common of such question types.

Direct General questioning types also typically took on Wh-question formats as in what are your plans?, what do you have to offer? what can we do abt it?

which were raised by various participants in their roles as MNC or IMF officers seeking information on individuals’ concerns and programmes proposed. They did not pre-empt any particular information from specific respondents only but maintained an openness in welcoming information from the participants taken. These broad, open-ended questions opened up the floor for discussion through a broadening of the dialogic space for information to be provided.

Rhetorical

Rhetorical questions (third highest at 17%) carried an implicit function of exerting a particular effect or directing a targeted impact on other participants. They had a specific purpose other than elicitation for pure information from other participants. Rhetorical questions used by students in this study implied their own answer as a way of making a point. Zoe, the NGO representative here, had earlier tried to persuade the WW female peasant to consider working for the sake of their families, in addition to having their husbands work:

‘2 people earning the same amt of money will bring more benefits to the children, family and their own agriculture’.

This led to the WW female peasant’s disapproval, given the patriarchal line of tradition in WW culture:

‘That would mean that men would lose their power over female, and i don\'t think that they would agree to that’

which culminated in the NGO representative’s rhetorical retort:

Zoe YouTopia: what's the point of men being in power if they are still not earning enough to support their own family?

In the next, Jason the MNC delegate tried to convince an NGO representative of the obvious benefits arising from the expansion of his company: ‘When our company expands, we will bring in thousands of jobs for the locals’. This was followed by the rhetorical question below in an attempt to convince the NGO representative of the good for the economy:
Further, the MNC delegate, Ned, in the following was eager to seal the agreement with the WW female peasants (represented by Guanleng) who acknowledged themselves as a ‘huge labour force who are cheap and hardworking’. This led to the prospect of more jobs for the WW female peasants, particularly with the proposal of foreign sporting companies setting up base in WWI and attracting investment, which culminated in the MNC delegate’s rhetorical question seeking affirmation for the agreement:

Ned YouTopia: we could probably have NIKE in waga waga island
Guanleng YouTopia: nike? you mean the brand that sponsor kobe bryant????
Guanleng YouTopia: oh my god!!
Guanleng YouTopia: YES!
Ned YouTopia: yes
Ned YouTopia: or ADIDAS IN WAGA WAGA
Ned YouTopia: when your economy has expanded, other companies will be attracted to invest in you all
Ned YouTopia: So i suppose we have reached an agreement already?

Rhetorical questions in this study reinforced Blanchette’s (2001) findings in her earlier work where they were used to persuade and indirectly challenge other participants. Rhetorical questions were opportunities for writers to evoke a targeted response. Such questions made their point in implying their own, desired answer. When used by participants, they appeared at influencing participants’ line of thinking and carried a distinctive strength and assertive force in themselves.

Closed
Closed questions (10%) did not open up possibilities for any further, extended responses; typically favouring one-word, ‘either or’ alternatives as in ‘Yes’ or ‘No’ answers.

The MNC delegate sought a clear response (to vote or not) from the IMF officer with regard to the resolution proposed after spelling out explicitly the specifics in a proposed plan:

Jason YouTopia: so will you vote for our resolution?

The IMF officer here issued a direct question to the WW peasant with the expectation of an explicit answer over his agreement or otherwise with the earlier proposals offered:

Jake YouTopia: Yes,peasant,do you agree with IMF and NGO resolutions?

This questioning type in eliciting essentially one word, ‘either or’ responses did not offer students the option of exploring alternative possibilities, and, in effect, limited or
constricted the dialogic space of participants. They were typically realized in structures such as ‘will you’ or ‘do you’, eliciting essentially one-word responses with an assertive force of their own.

**Recast / Reformulation**

Recast or reformulation questions (9%) involved a reformulation of key content words in the form of specific lexical items evident in a sequence of moves. In the following, the idea of the peasants’ protest march was foregrounded. The WW peasant, Alex, reiterated that the WW peasants’ league aimed for a protest march. This was immediately picked up by Guanleng, the WW female peasant, who questioned with the replication ‘a march?’ followed by a reformulation of the march as a non-adversarial form of protest in the question: ‘isn’t it peaceful protest’? This form of double questioning in succession within same move – as in a self-reply – was strategic in provoking a response. The idea of the ‘peaceful’ form of protest was then quickly self-renounced and, instead, recast as a healthy form of exercise: ‘walking is a form of exercise’ leading to the concession whereby the WW peasant, Alex, had to concede that it was a sort of a protest ‘if you want to put it that way’:

   Alex: not really my league stated that they only wanted to do a march
   Guanleng YouTopia: a march? isn’t it peaceful protest?
   Guanleng YouTopia: nope... walking is a form of exercise
   Alex: well it is sort of a protest if you want to put it that way

Reformulation questioning types, as seen, served the function of clarifying issues and strategically evoked a particular response. They pointed to participants thinking through and internally processing an elicitation through reframing or recasting a request for information.

**Indirect**

Indirect question types were so termed in that they were realized in the form of a declarative statement but fulfilled an interrogative function. Indirect: Statements (7%) (italicized) were often followed by the specific question which elicited the targeted information required of participants. Vale, the MNC delegate, sought to clarify from the IMF officer the stand regarding the setting up of companies on WWI:

   Vale YouTopia: There’s one thing i need to clarify.
   Vale YouTopia:So what is your stand from your company?
   Next, Zul the WW peasant aimed to elicit more specific information from the MNC officer
with regard to what peasants stood to gain were they to comply with the MNC job conditions and requirements:

Zul YouTopia: *I would like to ask for your opinion on our request.*
Zul YouTopia: What about the pay and welfare?

Indirect: Statements prepared the ground and paved the way for eliciting information as in clarifying specific issues in order to secure a response from their intended respondents. Participants prefaced their direct elicitation with preceding declarative statements which then led to the actual posing of the questions in the interrogative form.

Indirect question types were also realized in the form of one-word prompts (9%). Huileng, the WW female peasant, had earlier sought Derek, the NGO representative’s opinion on the peasants’ proposal which the latter had misinterpreted as seeking his vote of confidence for the proposal. This was quickly clarified by the WW female peasant as to how both groups could help each other; a point to which the NGO representative objected. The WW female peasant hence resorted to the one word prompt ‘then?’ in seeking further clarification. The NGO representative remained adamant in pursuing his earlier line of questioning, that is, whether his approval for the peasants’ proposal was the real issue:

**Derek YouTopia:** i have read through your proposal
Huileng YouTopia: what do you think about it?
Derek YouTopia: why u think your*
Derek YouTopia: vote for your proposal you mean*
Huileng YouTopia: no, i mean how can we help each other.
Derek YouTopia: nono
Huileng YouTopia: *then?*
Derek YouTopia: can you please answer my question first

In the next, Guanleng the WW female peasant’s ‘really?’ prompt was targeted at Alex, the WW peasant’s declaration that he was a representative from the WW women’s peasant’s league. This surprise prompt was not out of place, given the situation here of a deliberate instance of gender play where a male student had been specifically assigned a female peasant role which the research team built into the enactments at various points to study the impact of gender play (Ho 2008) on identity formation:

Guanleng YouTopia: you are from the peasant league right?
Alex YouTopia: i am from the female peasants league
Guanleng YouTopia: really?
Indirect: One-word prompts exerted an assertive force in themselves as they succinctly evoked a response from participants. They reflected a distinct attitudinal stance as participants sought to directly challenge and/or evoke a response from others in offering a pointed, targeted focus through prompt words such as ‘then?, really?, so?, meaning? however?’ used in specific contexts of the enactments.

**Internal scaffolding**

Questions which displayed internal scaffolding (8%) indicated self-explication and elaboration on the part of the questioner as he or she unpacked what was meant by building up the questioning through a series of successive questions in an attempt to elicit a response. An MNC delegate had expressed interest in investing in WWI. Zela, the WW peasant here, aimed in two successive questions, to elicit more specific input from the MNC delegate on their resolution, particularly on ways to improve the resolution to benefit the MNC more:

Zela YouTopia: So what is your view on our resolution?
Zela YouTopia: How can we improve the resolution to benefit your company more?

Next, Guanleng, the WW female peasant, challenged a WW peasant over the latter’s earlier proposal for the Long Peasant March as an explicit show of protest to any intervention by MNCs:

Guanleng YouTopia: so you think that will work?
Guanleng YouTopia: if the government allow the MNCs in, do you think they will listen to your protest?

She built on her earlier first question as to whether the idea of the protest march would work by elaborating on the conditional, namely that of the government allowing entry of the MNCs into WWI, and if that would be enough for them to take heed of the voice of the peasants in their protest. In internal scaffolding, questions built up on each other in succession, enabling students to pursue a particular line of thinking as they stayed on course with a topic even as they sought a response from participants. Such a questioning type reinforced the notion of question ‘pumping’ (Hogan & Pressley, 1997) in the pursuit for more information and putting the ‘onus on the student to provide more information’ (Chin, 2007, p. 824). The focus was on unpacking participants’ elicitation through deliberately elaborating or expanding on their earlier questions.
Mirror effect

Mirror effect types involved a reflection of similar lexical items in a particular order within a phrase or sentence. They were often followed up with a recast of what the ‘mirrored’ terms meant. They were not common in the virtual enactments, forming the smallest percentage at 1% of questioning types. Huileng, the WW female peasant, attempted to explain to Derek the NGO officer, the peasants’ intention (‘we wanted’) of having MNC investment in WWI, given the positive gains to the peasants which were elaborated. This led to the NGO representative jumping at the tense used in her response, namely past, which he mirrored in the questioning ‘we wanted?’. This was immediately followed by his reformulating what he thought the WW female peasant meant, that is, abolition of the very idea of MNC investment—a point for which he sought clarification.

Huileng YouTopia: we wanted to have MNCs investing in Waga Waga Islands.
Huileng YouTopia: MNCs could increase job opportunities as well as increasing the household income.
Derek YouTopia: we wanted? meaning you guys have abolished this idea?

This attested to students exhibiting an assertive confidence as they challenged each other through employing mirror effect moves through their deliberate duplication.

The role of questioning types in an extended question-answer sequence chain

Participants’ questioning through virtual dialoguing with each other can expand the dialogic space through opening up or widening the parameters for discussion. Specific questioning types along particular lines of thinking evoke targeted responses and require participants to give close attention to specificity in information and detail in the process of argumentation. To examine how these are realized in students’ dialoguing, attention now turns to examining a question-answer sequence or chain which involves a build-up of a series of questions posed by participants in driving the virtual dialoguing over a sustained stretch of enactment. To illustrate the significance of questioning in enactive role play, the following extract is used to represent an extended sequence of virtual dialoguing comprising a series of questioning types:

Jason YouTopia: However...
Debbie YouTopia: however?
Jason YouTopia: No I should say in addition
Jason YouTopia: I have come across some individual, who dismissed all MNCs as bad companies, exploiting workers
Jason YouTopia: These people often think there are intelligent in having such thoughts, but in actual fact, it is sheer foolishness.
Debbie YouTopia: yes and that is why the NGO is here to assure the workers that they will not be exploited.
Debbie YouTopia: however i have a question.
Debbie YouTopia: are you sure that 40 hours a week for the workers is enough for a developing country?
Jason YouTopia: Honestly, I will not deny that we are here to make profits.
Jason YouTopia: However, it does not mean that if we are profit-orientated then we are exploiters.
Jason YouTopia: right?
Jason YouTopia: Can you be more specific.
Jason YouTopia: 40 hours a week, yes, but how many hours per day?
Jason YouTopia: All in all, we would not be ill-treating the peasants.
Debbie YouTopia: because i read from your resolution that workers only have to work 40 hours a week.
Debbie YouTopia: for the females.
Jason YouTopia: I see, yes.
Jason YouTopia: We have machinery to ensure the desired output.
Jason YouTopia: Originally, we intend to extend this rather lucrative offer to the male peasants.
Debbie YouTopia: yes and what changed your mind?
Jason YouTopia: However, they have arrogantly declined our kind offer, to their disadvantage of course.
Debbie YouTopia: i see.
Jason YouTopia: What do you mean?

Figure 6. Extract of questioning types in extended question-response chain

The IMF officer, Debbie, interrupted the MNC staff, Jason, with a retort in the deliberate replication of his ‘However?’ as a one-word prompt to seek further clarification. This led to the MNC staff correcting himself and changing his own tack with the additive discourse marker ‘In addition’ in furthering his earlier line of argument as he elaborated on the perceived negative impression others have of all MNCs. Further on, the IMF officer’s declarative ‘however i have a question’ (Indirect:Statement) paved the way for her rhetorical ‘are you sure that 40 hours a week for the workers is enough for a developing country?’, implicating the limitation of work hours proposed. This, in turn, led to the MNC staff countering with his rhetorical question: ‘However, it does not mean that if we are profit-orientated then we are exploiters, right?’ after admitting their goal of profit-making. This was quickly followed by further specific questioning in the form of internal scaffolding which built one question from the other in seeking particular details as to the exact work hours proposed: ‘Can you be more specific? 40 hours a week, yes, but how many hours per day?’ Further, the IMF officer challenged the MNC delegate with the pointed, direct question ‘yes and what changed your mind?’ when the latter explained their original intention ‘to extend this rather lucrative offer (in the provision of machinery) to the male peasants’. He then elaborated this had been turned down.
‘arrogantly’ by the WW peasants which was to their disadvantage. This led to the IMF’s officer reactive ‘i see’ which was immediately taken up by the MNC delegate with the clarifying, specific questioning ‘What do you mean?’

The occurrence, type and range of a series of strategically posed questions in a stretch of virtual dialoguing demanded attention to content specifics and information detail elicited for clarifying queries, confirming points and challenging or dismissing arguments made. Participants drew on prior discourse moves of their peers in the uptake of each other’s responses as they formulated questions and raised further clarifications based on what were posed. This facilitated the co-construction of a thread of discussion among participants which was sustained for a specific stretch of discourse and took the discussion forward based on the exchange of specific issues and viewpoints.

**Pedagogical implications**

The findings presented in this study provided insights into students’ questioning types within the dialogic space of the SL environment with a focus on their range, purpose and linguistic realization for the exchange of different points of view and perspectives. Participants’ questioning types drew on the contexts designed, stimulating discussion on specific issues raised. Questioning types elicited information, challenged points raised and provoked responses from participants through various linguistic resources. They were recognized as significant in the specific contexts for participants to make informed decisions or come to a reasoned conclusion about the viability of plans, programmes and proposals put forth by the respective interest groups.

The examination reflected students’ resourcefulness in generating specific questioning types to elicit information with differing levels of assertion in relation to an ensuing discussion. While some were direct and open-ended in their form of elicitation which were favoured by most students, others required attention to content specifics raised as in reformulation and other less direct realizations. Rhetorical questions served as strategic devices in empowering participants to further their stance on an argument by provoking a desired response. Closed questioning types played a specific role in demanding an explicit response – yes/no, agree/disagree- in relation to a decision to be taken. Likewise, Indirect: One-word prompts which carried an explicit attitudinal stance functioned in cajoling a response from participants with a distinctive force of their own. The questioning types which demanded more from students with regard to what was generally regarded as effective questioning did not register higher incidence as they required a show of participants’ mastery and control over the dialoguing and how it was
unpacked in real time. These included questioning that called for focus of attention to specific content (reformulation), internal processing (internal scaffolding), skilful maneuvering (indirect question) and strategizing in resourceful ways (mirror effect) to secure targeted responses. These questioning types elevated students’ thinking (Hussin, 2006; Ornstein, 1995) in motivating them to craft different ways of eliciting information through various resources. Indeed, the SL virtual experience provided the platform for students to learn to develop skilful questioning, which according to Wang (2005:303) helped to increase students’ ‘intellectual moves that, in turn, facilitate the process of knowledge construction’ and allowed for multiple perspectives to be exchanged ‘simultaneously without worrying about interrupting the flow of a conversation that had moved on’ (Wang, 2005: 303). The virtual interaction placed specific cognitive demands on the students involved in the focus and attention given to sustaining particular threads of argumentation, and in provoking participant response to push the trajectory of dialectical discussion forward. There is clearly room for more work in developing students’ ability to be resourceful in constructing these intellectual moves for more challenging questioning types. Although this was a small scale study and more demanding questioning moves were not widely evident across every student’s enactments, there were emergent signs that students were developing in this direction.

The specific nature of the pedagogical environment offered by the SL enactive role play was a value add to developing the types of student-generated questions arising from the enactments. Compared to the traditional teacher-dominated classroom of the GP, the SL virtual world enactments provided the opportunity for student-generated questions without any teacher intervention. For passive, less confident students, this facilitated engagement with their peers in questioning and challenging viewpoints raised. Students in this study were generally not known to voice opinions freely, let alone question perspectives, on their own. The inquiry-based nature of the scenarios, however, put students directly in concrete situations where participants’ questioning strategies demanded responses which were critical to furthering a course of action or decision as in forging allegiances or verifying proposals and plans. It is not merely the virtual world itself that is prompting the students’ questioning. The dynamic nature of the scenarios promoted, in the spirit of inquiry-based learning, the development of higher order intellectual and argumentation skills through active role identification and participant engagement. The vicarious experiencing through the enacted roles of the complexity of the imagined situation with the attendant implications and repercussions on a global scale, was a powerful means of critical and creative engagement in the predominantly student-
directed, problem solving mode of inquiry. The students were no longer themselves as teenage students but playing out adult roles of lead negotiators in an international arena that their own personal inhibitions may be lost in the dynamics of enactive role play.

Further, unlike face-to-face classroom discussions, the construction of self-generated perspectives and observations was carried out in the non-threatening SL environment without the fear of students ‘losing face’ in the presence of their teachers. This reinforced an earlier observation of students being empowered in synchronous learning environments - ‘a questioner to each other instead of a passive listener or an answerer’ (Wang, 2005:311) to teachers or researchers. There was a spontaneity and immediacy in the synchronous rapid exchange of responses as it unfolded in real time for students before their very eyes in the virtual environment. This built up a heightened sense of awareness and involvement (Wang, 2005:304) in the learning environment with participants driven to offer their perspectives on issues raised and to respond to challenges posed by their peers. Unlike offline learning environments which may encourage prepared questions and answers prior to the activity, the real time enactive role play here demanded focus and concentration in the onscreen questioning and immediate responses over a sustained period of time. The learning environment provided for by SL also offered the opportunity for quick review, follow-up and comparison of students’ individual moves in terms of impactful questioning or otherwise from the logged transcripts of enactments. Compared to the classroom context, this was a boon to teachers, given that students’ questioning moves would be lost unless face-to-face classroom interactions were video-recorded for teachers to later play back for class input.

In this study, teachers were not actively involved in the process of virtual dialoguing with students. There was a place for appropriate scaffolding and careful structuring with modeling from instructors to promote effective questioning that would enhance students’ overall virtual dialoguing. Increased awareness of the linguistic realization of the various questioning types would help students to craft their questions in a more informed way for targeted effects to be conveyed. Explicit instruction in strategizing specific moves that built on each other in a stretch of extended discourse to steer and maintain a line of discussion or to impact an individual’s viewpoint on an issue would be invaluable. This reinforces observations from earlier studies where researchers noted that synchronous online environments may not necessarily lead to productive learning without appropriate structuring of strategies (Schultz, 2003). Further, there was room for widening students’ repertoire of questioning strategies, including subtle and less obvious ways of influencing participants’ thinking.
Conclusion

This study explored immersive virtual spaces as providing an experiential form of learning for developing students’ questioning skills in the process of virtual dialoguing with each other in SL in a dynamic and concrete way. The findings showed that the more frequently occurring types were direct and rhetorical questions. Questions that were less frequent required further work in thinking through and strategizing in the use of particular discourse features such as reformulation, internal scaffolding, indirect and mirror effect. The art of skilful questioning was acknowledged to be critical for meaningful discussion as appropriate questions, at the right place at the right time, could open up the pathway for effective argumentation to further sustain discussion and influence participants’ thinking.

This paper does not claim to be exhaustive in its investigation of students’ questioning types in an immersive virtual environment, given the relative limited data set involving a select group of participants in a specific learning context. What it has attempted to offer is in unpacking the range in type and purpose of questioning evident in novice student participants’ virtual enactments. More work could be carried out in following up on specific individuals’ questioning types across scenarios in order to track particular pathways taken among a larger group of participants. This would be invaluable to determining what it is more engaged students were doing which their less engaged peers were unable to. Further work could also be carried out on students’ virtual enactments in different contexts to determine other contributing factors which could affect the virtual dialoguing process.

There is currently much interest in the pedagogical opportunities offered by virtual worlds. This paper was a contribution to the field by exploring how such environments could provide valuable opportunities for real-time virtual simulations and role-plays, which could stimulate particular types of questioning, and, through these, dynamic processes of learning. The SL learning environment was an innovative technologically-mediated intervention for students to learn to develop specific questioning skills to promote dialogic interaction through enactive role play in the context of the GP. As we are reminded, ‘a good question-asking environment is a fragile and delicate thing’ (Brain, 1998: ¶15). The virtual world offered students a concrete platform for the construction of questions as they played out their roles in real time through the interplay of question-response sequences. Indeed, Dillon (1988) notes that when students do not ask questions, both teaching and learning suffer. After all, what is education if it is not to empower
students with a voice of their own, to build their own world, to develop their own space, indeed, to shape and construct their very own YouTopia?

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Appendix

Sample role card (Ho, 2007:32)

Glow International- A Multi-National Corporation (MNC)

You aim to diversify your markets in the next 5-10 years. You seek to maximize profits from your already successful investment in developed world and aim to carve out niche areas in a few identified markets in Asia.

You walk the tight rope in seeking to balance expansion in the developed world and at the same time addressing the needs of developing countries such as WWI. To this end, you strive, at the same time, to encourage the European and American governments to phase out or at least reduce the total amount of export subsidies. You believe that this will address the current distortions in world agricultural markets, given that the bulk of exports from developing countries such as WWI are agricultural products. You also aim to be seen to support the efforts of WWI and other developing countries to contribute meaningfully to sustained economic development, and the fight against hunger and poverty. This is particularly critical given the long-term goals of your company, Glow International, to make inroads into the markets of countries such as WWI.

You have quietly agreed to provide funding to the NGO United People’s Alliance provided they support your aim of removing Waga Waga island’s agricultural trade barriers.

References


Figure Captions

Figure 1 Screen shot of YouTopia island
Figure 2 Screen shot of SL enactive role-play session
Figure 3 Extract of logged text from SL enactive role play
Figure 4 Overall questioning types in enactive role play