Speak English: A Collaborative Language Learning System

Using Design Thinking in Second Language Education

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social

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Speak English

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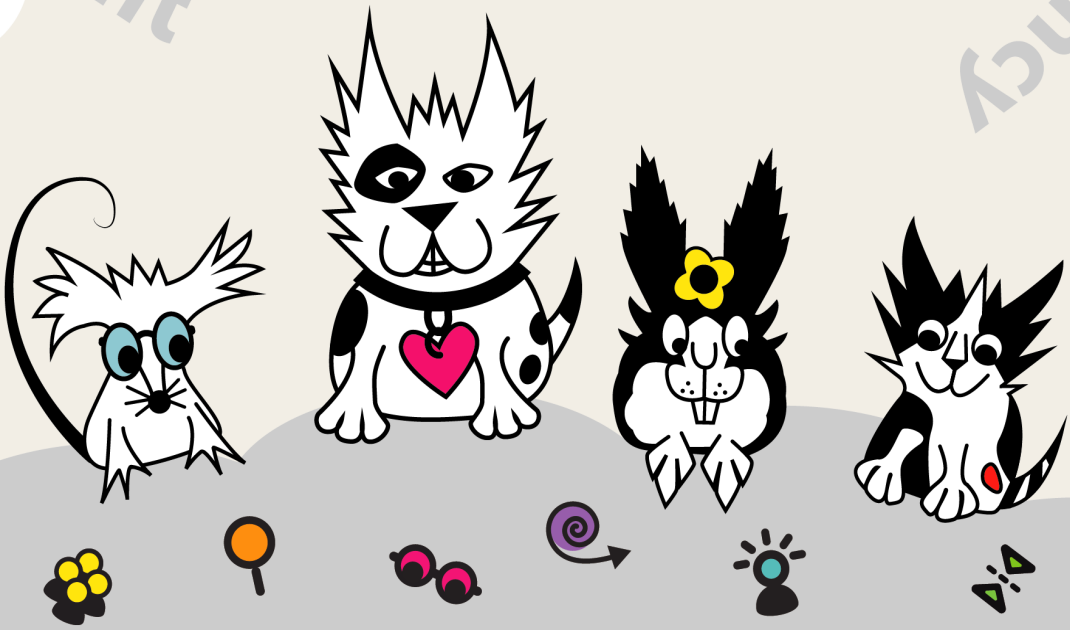
fluency



Abstract

The desire to communicate and converse in a second language is often hampered by students' lack of confidence, low motivation, passivity, unwillingness to take risks and/or over-reliance on contrived teacher-directed activities. This aim of this project, therefore, is to design a learning system that addresses these difficulties and thus helps English language learners improve fluency.

The project highlights a clear connection between design thinking and cooperative language learning, with both pedagogies promoting collaborative, real-life, team-based approaches. This, in turn, suggests that incorporating design thinking into educational design can help learners overcome the obstacles identified above and thereby become more fluent and confident when conversing.

Given this, the project involves designing and prototyping a cooperative language learning system drawing on the pedagogies of design thinking and design thinking for education. This *Speak English* system is based on a process of 'problem framing' that aims to improve communicative English competence through the motivational, risk-taking, ideational and iterative aspects of design thinking .

The final design system consists of prototyped examples of instructional language learning materials, including an app, a learners' booklet and worksheets. An accompanying explanatory poster and an animated overview of *Speak English* illustrate how the system works and how communicational language learning activities are initiated. As it stands, the initial *Speak English* system provides the basis for future integration of design thinking concepts (such as problem framing) into language learning pedagogy and materials design.

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“Jiamin. Tell me why you chose this website.”
We are in a design workshop at a university in China and I am teaching design theory in English to a class of Chinese students.
Jiamin looks at me in startled horror but does not reply. She turns to her friend Xin who translates my request into Chinese. Jiamin answers in Chinese without looking at me. Finally, Xin turns and gives me Jiamin’s response in English.
Later, I return to the pair and ask Xin a question in English. The earlier scenario is repeated, only this time Xin retreats in panic into Chinese while Jiamin translates and answers in English.
And this is not unique to this pair; time and again, students avoid directly conversing in English, relying instead on the intermediary of a friend.
As I discover first hand, despite all Chinese tertiary students studying English at school and at university, communicating readily in English during lessons is almost impossible.
This standard classroom behaviour, though. contrasts markedly with a rare English-speaking encounter with Chinese students on a train journey.
“How come your English is so good?” I ask one of my friendly interlocutors.
“Me and a group of friends practice every day before class,” he replies.
If students like Jiamin and Xin could be encouraged to overcome their fears and practice speaking like this, then they too would be able to communicate more freely in English.

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Chapter 1: Introduction

1.1 Background and Context

English is recognised as the "world's common language" (The English Effect 3) and the "international language of commerce, technology and diplomacy" (Teo 1), with "success in English [becoming] vital for academic and career success and a better life" (Ushioda 101). Given this, ever-increasing numbers of people want to learn English. An estimated 1.5 billion people are studying English worldwide, with three million International English Language Testing System (IELTS) tests conducted in 2018-19 alone (IELTS Numbers Rise to Three Million a year). The desire to learn and communicate in English is a global reality (Matsuda 24).

In East Asia in particular, there is a strong desire for 'communicative competence' in English – that is, and for learners to become fluent and proficient English speakers (Williams 148). Yet, as a telling example, the competence-based national vocational English syllabus introduced into the Chinese tertiary system in 2009 (Zhao and Coniamis 173) is not producing competent speakers of English - as I myself anecdotally discovered in China. Worldwide, it is widely noted that traditional language teaching methods do not necessarily result in fluent communicators in English (Richards and Rodgers 83; Williams 36; Johnson 174).

My design research project seeks to address this hugely important gap in much of the traditional teaching and learning of English - that which fails to promote students' ability to competently communicate in the language.

As discussed in greater detail below, *design thinking* and *cooperative language learning* are both pedagogies that promote collaborative, real-life, team-based approaches to achieving successful outcomes. Given this connection, the focus of this project is the creation of a classroom-based language learning system based on the design thinking process. The system - which I have called *Speak English* - is designed to encourage collaboration, communication and conversation, and thus improve the fluency of second language English learners.

Drawing on the pedagogies of design thinking and cooperative language learning, my *Speak English* system relies on a process of 'problem framing' by which learners work through a series of phases to identify a problem before using ideation, speaking and conversation to work towards possible solutions. (For more detailed discussion of problem framing within design thinking see, for example, Schon (82), Cross and Clayburn Cross (71), Buchanan (14).) Here, problem framing is used as a means to initiate fluency activities and encourage conversation by applying design thinking concepts.

At a practical level, this project demonstrates how a problem-based, design thinking approach can improve communicative English competence through a motivational, risk-taking, ideational and iterative framework. At a theoretical level, meanwhile, my *Speak English* system is a new

approach that addresses a genuine ‘gap’ in current language teaching by incorporating design thinking into a novel cooperative language learning framework.

1.2 Project Aims and Objectives

As described above, my research aims to create an innovative cooperative language learning framework, drawing on design thinking and problem framing, to help language learners improve their English fluency. An additional key objective is also to provide an initial concept upon which future research and design may be based.

Speak English is a cooperative language learning system that is supported by illustrations and animations and by digital and printed media examples/suggestions as prompts for learners to use. As it initially stands, my system is intended to be used in real-life classroom situations in tertiary educational institutions with intermediate and above learners of English. Part of the system has been developed as an app and I explain how and why this delivery method can be useful in a classroom situation. The *Speak English* system provides the basis for similar English language fluency systems to be developed for use at different learner levels and in different teaching/learning contexts.

The underlying rationale for my research is that a problem-based approach drawing on a design thinking can improve communicative English competence by increasing language production. This approach differs from existing models of language teaching/learning (see section 2.2) through its use of design thinking methodology. For example, *Speak English* aims to enhance student motivation through empathy and risk taking, with structure provided through a scaffolded and iterative (repeated) process, and language generation taking place through collaborative brainstorming - all of which reflect the motivational, structural and generative features of design thinking.

1.3 Chapter Overview

The chapters that follow address the broad question, how can language learners benefit from an approach drawing on the design thinking process? - and, more specifically, how can aspects of design thinking (such as problem framing) be used in the creation of a learning system to encourage spoken language production and fluency? And as part of the overall process, how can design theory inform the creation of a language learning system?

Chapter 2 establishes the design and educational theoretical platform upon which the *Speak English* system is based by introducing the general theories of design thinking and design thinking in education, and (albeit briefly) the theoretical assumptions underlying existing language teaching/learning pedagogy. The research literature on design thinking in education is then analysed to identify those process phases of most relevance to a language learning system aimed at enhancing fluency. Popular language learning methods and materials are compared and contrasted, with the aim of highlighting where and how these methods/materials fail to

encourage creative language use. Finally, design criteria (such as appeal, usability and interactivity) are discussed.
The actual design of the *Speak English* language learning system is presented in **Chapter 3**. The chapter begins with the initial development of the system, before examining how and why the design was progressively refined. To explain how the system works, it examines it from a learner's perspective (i.e., from the point of view of someone using it). The visual 'look' and theme of the system, including details of the system's app, booklet and worksheets, are then considered, as are the accompanying animation and poster. Throughout this chapter, relevant theory is used to justify design decisions.

Finally, **Chapter 4** summarises the achievements of the project, critiques the design and presents considerations future developments.

Chapter 2: Design Thinking & Language Learning

2.1 Design Thinking and Design Thinking for Education

The concept of design thinking originated as a description of the creative process in architectural, engineering and industrial design (Thompson et al.). Three different 'accounts' of design thinking have been identified; a cognitive style, a general theory of design, and a resource for organisations (Kimbell). (For further theoretical and historical discussion of design thinking, see Cross (2006; 2011); Buchanan; Brown and Martin.) And while there is no generally agreed upon meaning of 'design thinking', it can be conceptualised according to how it is used in different contexts (Johansson-Sköldberg et al. 132). Consequently, design thinking has been re-moulded and used in many disciplines, with this project focusing on design thinking in education.

Design thinking is taken to have great potential for use in inter- and multi-disciplinary educational settings (Scheer et al 18; Carroll et al. 37; Koh et al. 9; Wright and Wrigley) - for example, as an adaptable educational resource, with the capacity to complement existing pedagogies (Melles et al. 2).

The educational benefits of design thinking are utilised in this project to develop a new system of cooperative language learning - namely, an authentic learner-led approach delivered via a scaffolded, socially interactive and generative process. However, before explaining this in more detail, the relevant research literature on design thinking in educational contexts and the relevant design thinking 'phases' used in the classroom must first be examined.

I begin with a brief background on theories of language teaching/learning and of the link between these and the 'human focus' of design thinking. This is important as it provides a justification for why I have chosen specific elements of language teaching/learning theory (such as cooperative language learning methodology) for my *Speak English* system.

2.2 Theories of Language Acquisition and Language Learning

Existing approaches to language education have emerged from three broad theories of language acquisition - behaviourist, acquisitional and constructivist - although, at present, there is no consensus as to the best way to teach/learn another language (Johnson 9).

Behaviourist approaches - based on the ideas of the likes of Ivan Pavlov and B.F. Skinner (Johnson 47-48) - rely on stimulus response and habit formation; for example, traditional 'listen and repeat' exercises. Much English language teaching, particularly in Asia, is heavily influenced by behaviourist ideas whereby students are expected to rote-learn English phrases with little regard to meaning or understanding (Williams 92,190; Teo 1; Lui 1050).

From the 1960s, beginning in first language acquisition theory, such behaviourist concepts were superseded by the idea that language is internally constructed and therefore *acquired* rather than learned. With second language teaching, this new Chomskian approach - so named after the linguist Noam Chomsky who first championed the idea - entailed a more flexible, meaning-based focus, with language learners developing competence through using language and 'creatively constructing' an intended message within an active learning environment (Johnson 72-74; Richards and Rogers 26, 91).

In the 1970s, an additional social or *social constructivist* dimension was added to these models of language acquisition following the 'sociolinguistic' theories of psychologist Lev Vygotsky - namely, the idea that language is constructed collaboratively alongside others who may adopt a guiding role (Richards and Rogers 27-28, 90-91, 248). The communicative and cooperative methodologies of much current language pedagogy, therefore, is due to this social constructivist influence (Richards and Rogers 81-83). Indeed, as the name suggests, the *cooperative* language learning model that forms the basis of my *Speak English* system is itself based on social constructivist notions.

Here, it should also be noted that design thinking is similarly rooted in social constructivist theory. Wright & Wrigley, for example, refer to the "constructivism, social learning, situated cognition, experiential learning" in an instructional designers' design thinking model, while Scheer et al. present design thinking as a practical way of implementing constructivist (constructed, self-regulated, situated and collaborative) learning. Similarly, Carroll's influential "Taking Design Thinking to Schools" project is explicitly guided by a Vygotskyan sociocognitive view of learning (Carroll 39).

Social constructivist theories, therefore, promote learning activities that are compatible with both design thinking and cooperative language learning - that is, by involving real communication, and meaningful, authentic tasks that promote greater learner participation. In addition, constructivist learning focuses on authentic and student-directed methods to promote ownership and control of learning (see Iversen et al. 2).

2.2.1 The human focus - design thinking and cooperative language learning

Behaviourist methods (such as parrot-fashion rote-learning) lack the human focus of more collaborative approaches in which language is creatively constructed within a social environment.

In this respect, design thinking, too, has an explicit human focus. This takes two forms: firstly, it is necessary for designers to create products or services in response to human needs (Razzouk and Shute, 336); secondly, design and design thinking takes place in team situations involving social collaboration (Cross 114). In an educational context, Richie et al. (11) refer to the human-centred aspects of design thinking as "collaborative tools" that offer a way "to demonstrate the benefits of collaboration and to build students' communication skills". As communication is a

quintessential human activity, the human-centred collaborative approach advocated through design thinking is clearly relevant to designing a system for developing language fluency.

Cooperative language learning - the language teaching/learning method adopted in my *Speak English* system - emerged as an extension of broader communicative language teaching strategies (Richards and Rodgers 245). Cooperative language learning therefore shares the human aspect of design thinking in its focus on communicative interaction, social collaboration, group work, discussion and negotiation (Richards and Rogers 244-255).

Having briefly explained why both design thinking and cooperative language learning form the basis of my *Speak English* language learning system, I now review wider research into design thinking in education. The following case studies illustrate why and how design thinking has been applied across education sectors and the implications this has for using design thinking in language learning. In a later section, I look at research that focuses on specific aspects of design thinking in education to highlight those of most relevance to my *Speak English* system.

2.3 Design Thinking in Education

Carroll et al. (2010) applied design thinking strategies to the geography curriculum in a middle school in the USA. Their research aimed to increase understanding of the role of design thinking in a school context using the process of "understand, observe, point of view, ideate, prototype and test" (ibid.: 40). A key focus was on how design thinking promoted creativity, active learning and problem-solving.

Of particular relevance to language learning is the "design as connecting" theme that Carroll et al. identified, in which students had the opportunity to "express their voices, take risks and engage in collaborative experiences" (ibid.: 39). According to the researchers, design thinking fostered the development of "creative confidence" and a "can do" attitude, with students preferring this active approach to learning (ibid.: 49, 52). This study suggests that design thinking could similarly foster confidence, collaborative communication and active learning in a cooperative language learning context.

Design thinking tools and techniques were also used in creative learning workshops for fashion students at a university in northern England (Richie et al.). The aim was to explore how design thinking tools and techniques could enhance learning through "story-tell, brainstorm, voting and feedback and capture." (ibid.: 14). Of particular note here is that the collaborative tools of story-tell and post it note brainstorming were seen as being the most helpful learning techniques (ibid.: 15), with the study concluding that design thinking as a collaborative tool benefited groups and individuals, while providing opportunities to build communication skills (19). Importantly, this study highlights the motivational and communicative benefits of design thinking.

As described by Melles et al. (10-11), trainee teachers in Australia studied design thinking in relation to the educational strategies they had already acquired. The aim was to increase the

knowledge and use of design thinking in education so that these trainees would be able to apply design thinking strategies on becoming practicing teachers. Lectures emphasised design thinking concepts such as "understand, observe, point of view, ideate, prototype and test" (ibid.11). After being given a learning design task that involved problem-finding and prioritising empathy with their users, trainees and staff gave positive feedback on the process outcomes. Nevertheless, as Melles et al. themselves point out, a major challenge arose because of the reluctance of trainees to take risks, thereby limiting their creativity (ibid.). This, in turn, has implications for language learners who may have similar risk-averse tendencies that inhibit their ability to communicate in a second language.

Melles et al. (13) also examined a London primary school science curriculum project that involved the use of design thinking to "hook" children and increase their engagement in their topic through a process of "immersion, synthesis, prototype and pitch". The immersion period introduced children to the solar system and involved a visit to the space gallery of a science museum. During the synthesis stage, the children expressed disappointment with their experiences of the space gallery and thus identified a personal problem, namely: "How might we enhance the learning opportunities, for a child in the space gallery, at the Science Museum?" (ibid. 15). This highlights how *problem finding* can generate authentic projects which have motivational "emotional connection" (ibid.) for participants. Yet again, this is of clear relevance to the aim of providing similar motivation and emotional connection to language learning tasks.

Roy & Brine's study of undergraduate science students in Japan is an example of applying design thinking as a 'new' pedagogy in English as a foreign language (EFL) teaching. The aim was to explore web design analysis as a means of developing thinking skills and producing original language content (ibid. 1). Students followed a process involving website evaluation exercises, presentation, discussion and reflection. Findings showed that students had difficulty responding to questions concerning website presentation and quality but found navigation and technology questions relatively easy. After drawing attention to how translation software contributes to the production of restricted and unoriginal content, the authors suggest that the aforementioned difficulties were due to a lack of "higher order thinking" and not "EFL language-level deficiency" (ibid. 17). This is significant as it points to a need to develop thinking skills alongside language learning. It also informs language learning system design by highlighting the necessity of practice that produces authentic and original language content as opposed to generic "copyable" responses.

In particular, Roy & Brine emphasise the importance of using original content that can generate non-standard responses focusing on quality rather than quantity (ibid. 18). This is of obvious relevance to designing conversational practice tasks designed to improve the fluency of language learners.

When used in educational contexts, therefore, design thinking has clear motivational benefits by providing a collaborative, communicational context for learning. Design thinking offers techniques that are positively received by students, with its technique of 'problem finding' especially useful in providing opportunities to work with authentic and personal material. Authentic content in particular has been highlighted as important to language learners' higher order thinking and the generation of original responses. As illustrated in figure 1, the research

findings above also emphasise the need to develop learners' risk-taking behaviours and thinking skills, situated within a social, 'human' context.

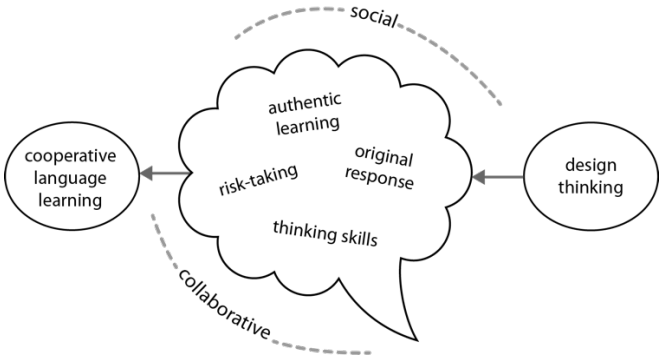

Fig.1. Design thinking benefits to cooperative language learners

The research reviewed thus far clearly indicates the relevance of design thinking to educational theory and practice, and to the teaching and learning of English as a second or additional language. The specific elements of design thinking will now be examined in more detail - most especially empathising, problem finding, ideation and iteration.

2.4 Relevant Process Phases of Design Thinking

Figure 2 below represents a widely accepted model of the five process phases of design thinking (see Doorley et al.). (In addition, see Koppen and Meinel (26) for more detailed discussion of the phases of the design thinking process.) The core phases and elements shown here also illustrate the key aspects to draw on for cooperative language learning and for my *Speak English* system (as discussed in detail in Chapter 3).

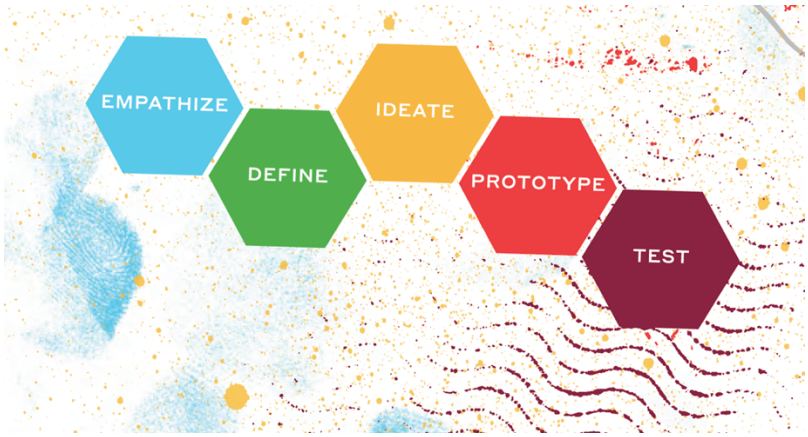

Fig.2. Phases of the design thinking process (based on the Stanford D model - see Doorley et al. 2018)

In the following, the most relevant elements of the design thinking process in educational contexts - empathising, problem finding, problem-framing, ideation and iteration - are reviewed within the research literature. These elements, in turn, are crucial to *Speak English*'s constructivist learner-led approach to cooperative language learning described in the next chapter.

2.4.1 Problem Finding

In their study, Melles et al. examine the problem finding aspect of design thinking in the London science museum example discussed above. In particular, they identify how problem finding provided participants with a personal, motivational 'emotional connection' to a real-life project. Melles et al. conclude that problems generated from actual experience rather than contrived scenarios have the capacity to "engage students at all levels in the problem-finding process and the eventual proposal of solutions," adding that in an educational context it is this different approach that gives a design thinking model its strength (ibid. 18). This study clearly shows the motivational benefit of adopting design thinking's problem framing approach, one that involves learners in finding their own problem. Such an approach also provides a practical way of implementing learner-led education.

Similarly, in a language-learning context, Roy & Brine point out the need to work with authentic and original content and so enable learners to generate non-standard responses. (This contrasts, for example, with the contrived and fixed language often used in traditional language teaching.) From Roy & Brine's perspective, original content encourages higher level thinking that can increase the quality of language produced. Moreover, the design thinking process centres on "ill defined" problems that can be solved in a number of ways, with learners devoting a significant amount of time and energy to both finding and solving their problem (Melles et al. 5). Again, this points to the value of using a design thinking and problem finding approach in language learning.

2.4.2 Problem Framing

Problem framing is considered an essential part of the design process. This is the stage that comes after a problem has been found. Constraints are set to limit the problem's scope and the problem may be defined in order to say what it is or is not. Problem framing can be used to tackle difficult problems in a non-linear way, and so offers a means to decide which are "worthwhile" problems to solve and then to generate solutions for them (see, for example, Gray 300). Problem framing in design thinking happens in the first three phases *empathise, define and ideate.*

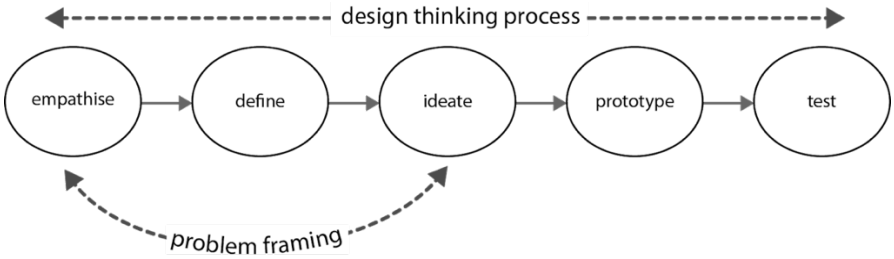

Fig.3. The phases of design thinking with problem framing emphasised (based on the Stanford D model - see Doorley et al. 2018)

2.4.3 Empathy and Risk-taking

Within the design thinking process, the problem finding phase relates to *empathy*, where learners are encouraged to observe, engage with and immerse themselves in their user experience to gain experiential insights (Doorley et al.). This aspect of design thinking focuses on user needs and perspectives to drive the innovation of products, services or systems (Melles; Tu et al.).
Here, however, other aspects of the concept of 'empathy' within design thinking must also be emphasised - namely, group collaboration and taking others' perspectives into account. In this respect, empathy is described as a "crucial impact factor of design thinking,"(Koppen & Meinel 22) and one of the "fundamental intrinsic mindsets" in design thinking for education (Carroll et al. 41 - see also Wright & Wrigley).

Importantly, empathy is also described as crucial in cooperative learning through motivating learners to communicate by increasing risk-taking behaviour (Cooper 54). Johnson considers risk-taking "a vital part of language learning," and a "skill" that must be mastered alongside others to develop language competence (ibid. 268). Taking risks and making errors encourages "strategic competence" whereby learners can learn to communicate using restricted language resources and cope with communication breakdowns (ibid. 38-39). At the same time, however, free communication activities can prove very difficult for many second language (L2) learners and therefore there is a need to provide a 'safe' environment where learners feel supported to 'fail'.

A supportive 'safe space' for risk-taking is used in design thinking to encourage creativity (Royalty et al. 90). Likewise in a language learning context, "supportive interactive environments" or classroom "safety nets" can minimise anxiety and encourage L2 risk-taking (Gkonou et al. 138). According to Cooper (236), empathy is important in providing a safe environment where learners and educators can be more creative and adventurous.

Empathy, then, is a dimension that can help to promote such safe spaces for learning through promoting emotional engagement and cooperation (Cooper; Koh et al. 50). In a language learning context, empathy is a means of creating anxiety-reducing roles (Gkonou et al. 35; 216). In design thinking, empathy is also used to facilitate teamwork by developing a "shared identity" or "team spirit" (Koppen & Meinel 2015).

In summary, empathy can provide a valuable addition to cooperative language learning as it provides a safe risk-taking learning space in which learners can more confidently open up and speak. Empathy as a design thinking-based strategy, therefore, can also be a cooperative language learning strategy.

2.4.5 Ideation

Ideation in design thinking usually takes the form of brainstorming for the purpose of generating a large number of potentially new and unexpected ideas (see Carroll et al.). According to Melles et al. (2), ideational brainstorming can enhance engagement and improve idea generation in all disciplines. In a design education context, for example, ideational techniques can lead to greater student engagement, increased discussion and an improvement in the quality and quantity of ideas (Ritchie et al. 16).

In an English teaching/learning context, ideation techniques can improve motivation, creativity and language performance. For instance, Liao et al. report that creative thinking and brainstorming at elementary level led to improvements in all the above areas. The strategy involved focusing on the learning process as opposed to end results, encouraging learners to "share a flow of ideas without criticizing each other," and associating new vocabulary with a personal "lived experience" (ibid. 214-219). Ideation in the form of brainstorming, therefore, can foster language creation and encourage learners to creatively construct language.

2.4.6 Iteration

In design education, Mentzer et al. (9, 13) emphasise the need to repeat and practice (i.e., iterate) brainstorming techniques to improve skills. Design thinking incorporates iterative repetitional skill building to provide an essential *scaffold* for learners where they can develop task and language skills. This scaffold concept links to oral language learning which also necessitates repeating and practicing tasks in a framework of "guidance and support" (Goh 248). According to Dornyei, such scaffolding is crucial for creating a motivational "interdependence" in cooperative language learning (ibid. 484). In addition, the "structuring principles" of shared team goals, rewards, roles, resources and rules, indicate the importance of scaffolding to encourage learners to cooperate (ibid.).

The process based and repeatable nature of design thinking provides clear scaffolds to support teamwork, active learning and communication - all of which are also essential in cooperative language learning. Melles et al., for example, point out that design thinking outlines clear strategies to facilitate learning. Here they contrast design thinking's practical approach to more theoretical "problem-based learning" and "enquiry-based learning" in language teaching, in which there is little of actual substance to assist the teacher: "Compared to the design thinking approach, problem-based learning and enquiry-based learning emphasise the educator in scaffolding the problem solving process *but rarely is any attention given to strategies that the instructor can use* to facilitate this process" (ibid. 3 - emphasis added).

2.5 Language Learning Systems

The previous sections have examined the concept of design thinking and its relevance and applicability to theories of language teaching/learning. I have also reviewed the research literature of design thinking within educational contexts, including in the language learning classroom.

Before applying this theory to the design of my own Speak English system, in the concluding sections of this chapter, I evaluate a number of existing language learning systems used for teaching English and identify their limitations. This is in line with the standard design practice of evaluating 'precedents' for the design product - albeit that, in this case, *Speak English* is a novel system for which there are few clear precedents. (Indeed, the lack of language learning 'products' to encourage fluent and creative English communication is the very 'gap' that my project seeks to address).

Here, I define 'language learning system' as a self-contained system for teaching/learning a language, or for practising specific aspects of language use, whether based on traditional coursebooks and printed material, or on internet/computer/mobile applications. The *Speak English* system that I have designed (as discussed in the next chapter) is itself a language learning system, albeit one that targets a specific aspect of language use (i.e., conversational fluency). In this respect, *Speak English* is a stand-alone system that may complement other existing systems by focusing on improving student fluency through the collaborative, risk-taking, etc. elements of design thinking considered above.

2.5.1 Coursebook-based Language Learning Systems

Traditional coursebooks are more-often-than-not the main source for lesson materials in many language schools (Ekin 1306). The critical research literature on such coursebook-based language learning systems matches my own experience of teaching English as a second language in Europe, Asia and New Zealand - namely, that the language modelled within course texts is often too contrived or too restricted to provide much value as examples of real-life English. For example, Aksoyalp & Toprak note that EFL textbooks may provide advanced English learners with a strong grasp of grammatical rules and vocabulary; however, due to the texts' "lack of attention" to real-life "speech acts", these same learners' often lack fluent and useful conversation skills (ibid. 131). Similarly, Ekin's study of EFL textbooks and their effectiveness in teaching conversation concluded that the "incomplete or misleading input" in the materials impacted negatively on learners' abilities to converse fluently in authentic English" (ibid. 1310).

Oxford University Press's popular *New Headway* series - described as "the world's best-selling English course" - provides a concrete example of such restricted or contrived English 'speech acts'.

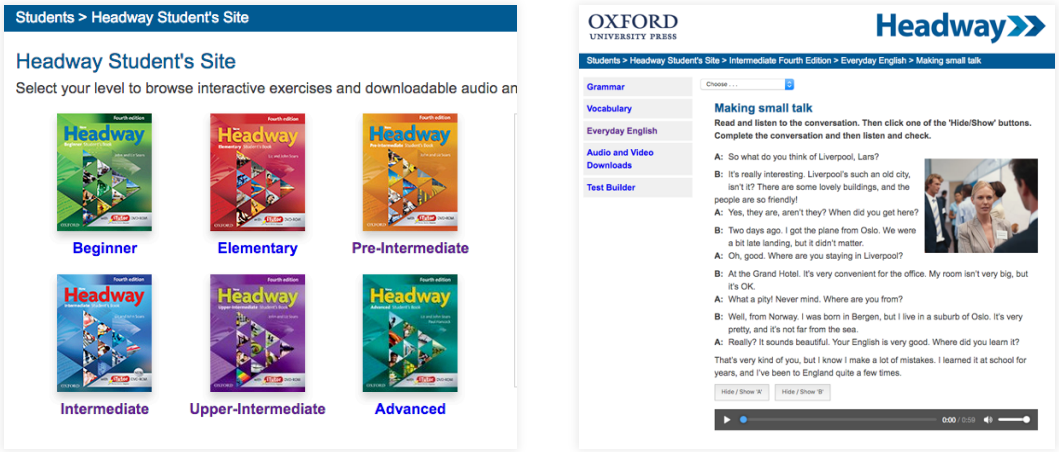

Fig.4. Selected pages from Headway Student's Site (Oxford University Press)

The example in figure 4 is taken from *New Headway*'s intermediate 'Everyday English' (Headway). The task is a 'listen and repeat' exercise where learners listen to the scripted conversation and then hide one speaker's part, and take turns to remember the correct responses. Whilst this is useful practice, it is not 'real' conversation where learners have to use language resources to formulate unique and meaningful communicative responses. In other words, despite its up-to-date web-based guise, this appears more an exercise based on older behaviourist approaches than more modern creative constructivist methods.

2.5.2 E-learning Platforms and Online Language Learning Systems

Here, two e-learning/online language learning systems - *New Horizon College English* and *MyELT* - are briefly critiqued.

2.5.2.1 New Horizon College English

Like OUP's *New Headway*, the *New Horizon College English* (*NHCE*) is a popular English learning series used in Chinese higher education (Wang 203). Shen et al. review *NHCE*'s e-learning platform for classroom and self-study purposes, and conclude that its materials are "more akin to audiolingualism [i.e., behaviourist rote-learning] than the task-based approach based on constructivism" suggested by college-level English curriculum requirements (ibid. 99). They conclude: "Research on the extensive implementation of *NHCE* e-learning for college English classes further revealed that students who finished the repetitive role plays *did not improve their spoken English*." (ibid., emphasis added).

As can be seen in figure 5, *NHCE* gives the appearance of a modern language learning system.

Fig.5. New Horizon College English Book 1 Unit 1 cover

Nevertheless, as figure 6 illustrates, the actual materials used within *NHCE* do not necessarily match the modernistic feel of the system's cover page. More importantly, the language examples used (e.g., "I hear there is a big reward for the seizing of the thief) are not natural, native speaker-like utterances.

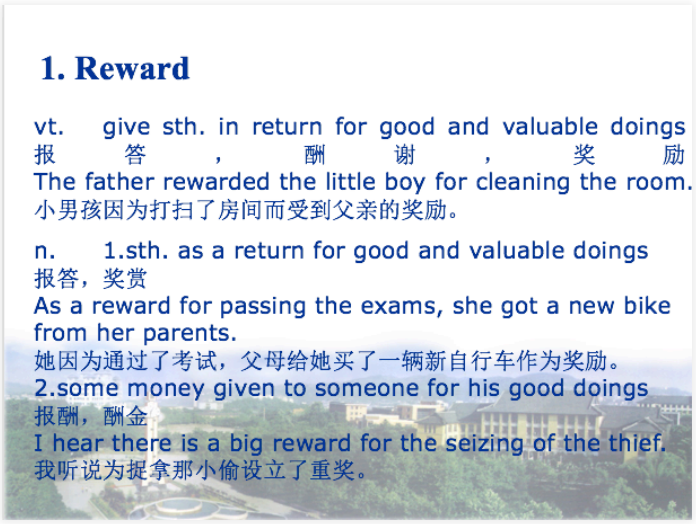

Fig.6. New Horizon College English. "Book1 Unit1 ppt download"

While this is by no means an exhaustive survey, here at least both *New Headway* and *NHCE* appear to play lip service to modern creative approaches to language learning while still employing older techniques and/or unrealistic language examples.

Furthermore, in discussing the need "to enhance the role plays on the *NHCE* e-learning platform through 'constructive role plays'," Shen et al. (99) highlight another important drawback of many existing language learning systems - that in order to allow students to practice more authentic English, teachers have to create their own materials (defeating the object of having a self-contained system in the first place). (As will be seen in the next chapter, the *Speak English* system tackles this by encouraging students to come up with their own creative topics.)

2.5.2.2 MyELT

An online learning management system that is much more technologically sophisticated than the *NHCE* e-learning platform is National Geographic's *MyELT*. This system has been designed specifically for classroom-based English language learning and delivers content through a variety of audio and visual materials. Interactive practice is achieved via speech recognition technology, games and more traditional gap-fill exercises (i.e., where students must fill in a missing language item - say, the correct form of a verb - in a sentence).

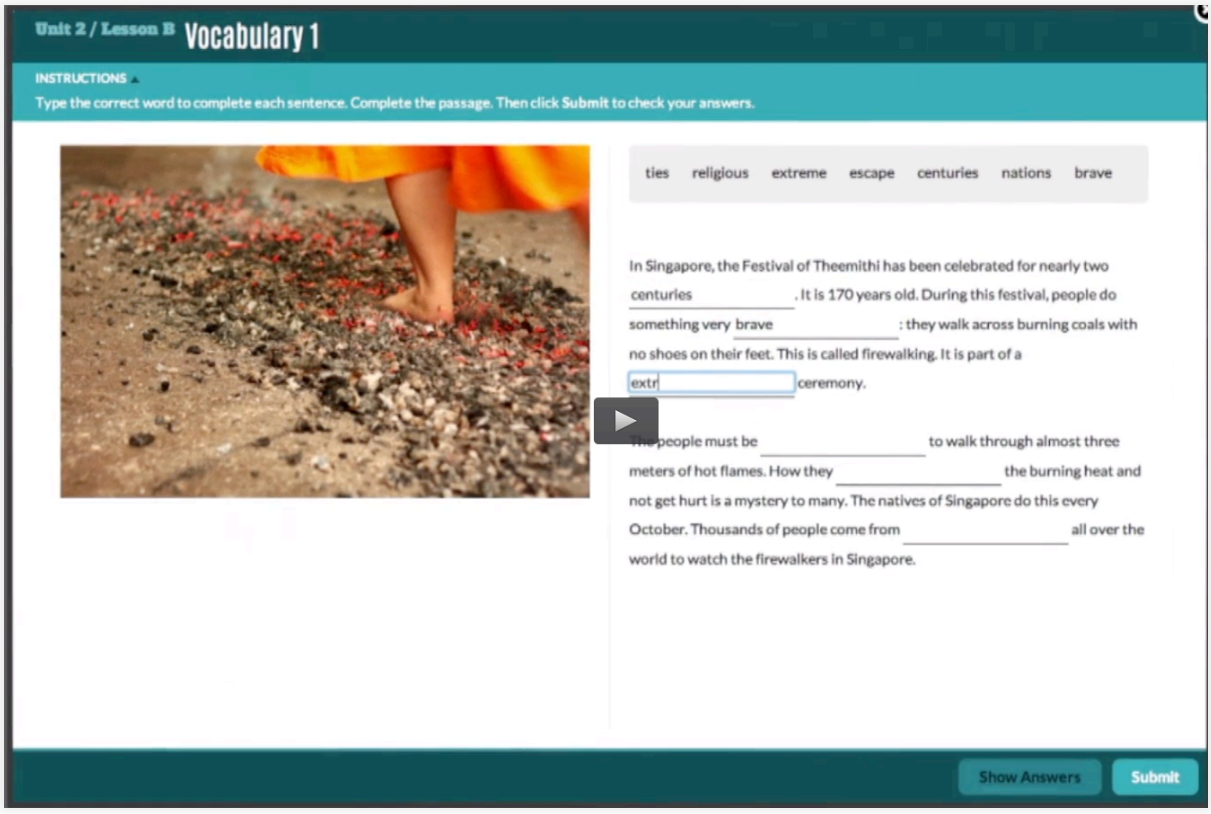

Fig.7. My Elt. "Introduction to My Elt"

However, while such technology is still in its infancy (and will likely improve with time), this technological sophistication brings with it its own limitations. For example, while the system was rated positively by teachers and learners at a university in Turkey, they experienced difficulties using it because of learners' and tutors' weak ICT skills and technical problems

(Taysi & Basaran 100). When considering improvements to the system, the authors also suggested that it "should let the students *communicate with each other* and the outer world and thus use the target language in *an authentic context*" (ibid.: 109).

The difficulties encountered when using the MyElt system indicate the need for simple and usable systems for English language delivery. In addition, as has been noted in the case of coursebook-based systems, there is a need for more emphasis on real-life social communication exercises.

2.5.3 Individual Language Learning and Self-Study Systems

Duolingo is a language learning app designed for individual language learning and self-study. It was rated the best free language learning app by PC Magazine in 2018 and has been described as the "crème de la crème" of language programmes on the market (Duffy 2015; 2018). Strictly speaking, however, Duolingo is not a self-contained language learning system; rather, it is designed to allow users to increase their vocabulary and to practise language production irrespective of other methods of learning. In this respect, it is an *individual* study system based on behaviourist approaches (Teske 398) rather than a collaborative, creative language learning system.

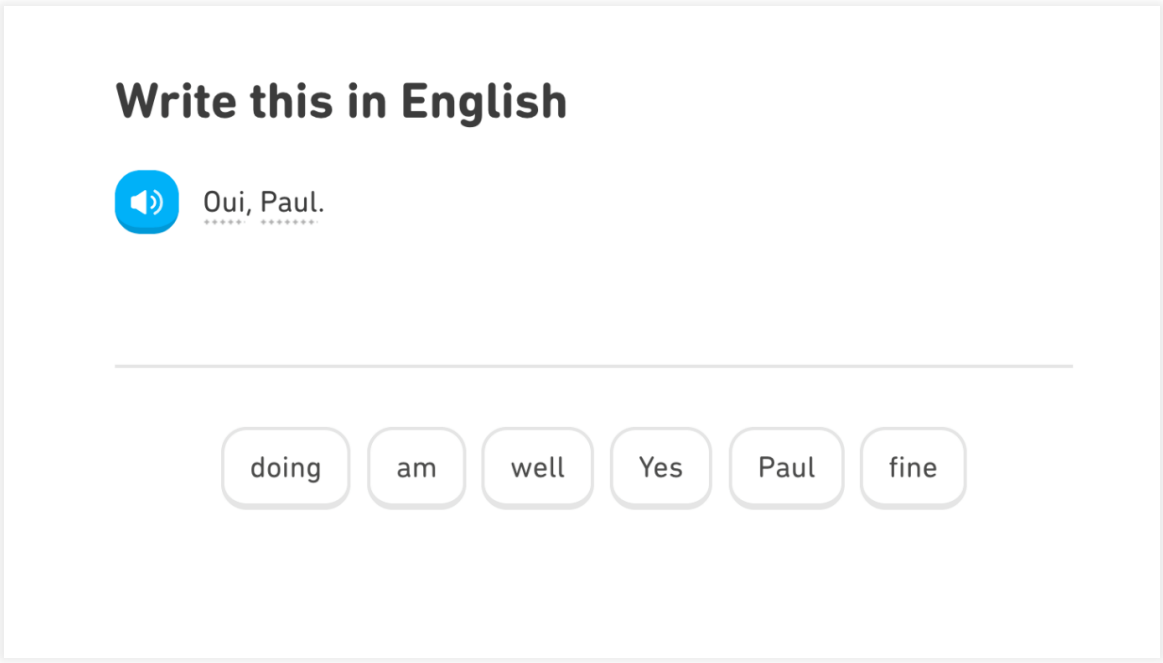

Fig.8. Duolingo, "Greetings"

Nevertheless, Duolingo has a number of features that are of particular relevance to the design aspects of the Speak English system described in the next section. For example, its game-like approach, engaging and simple design, intuitive user interface, accessibility and zero cost have

been noted as reasons for this popularity (Online Course Report). Of particular relevance to Speak English is the interface design. It is easy to navigate, the graphics are bright and appealing and “Duo” - a small, cute owl character - adds likability as he accompanies the learner and offers encouragement throughout the courses. (In fact, Duo has a major internet following including his own wiki page and a multitude of fan created memes (Fandom.com)). The accessibility and interface design of Duolingo are major contributors to the appeal and popularity of the system.

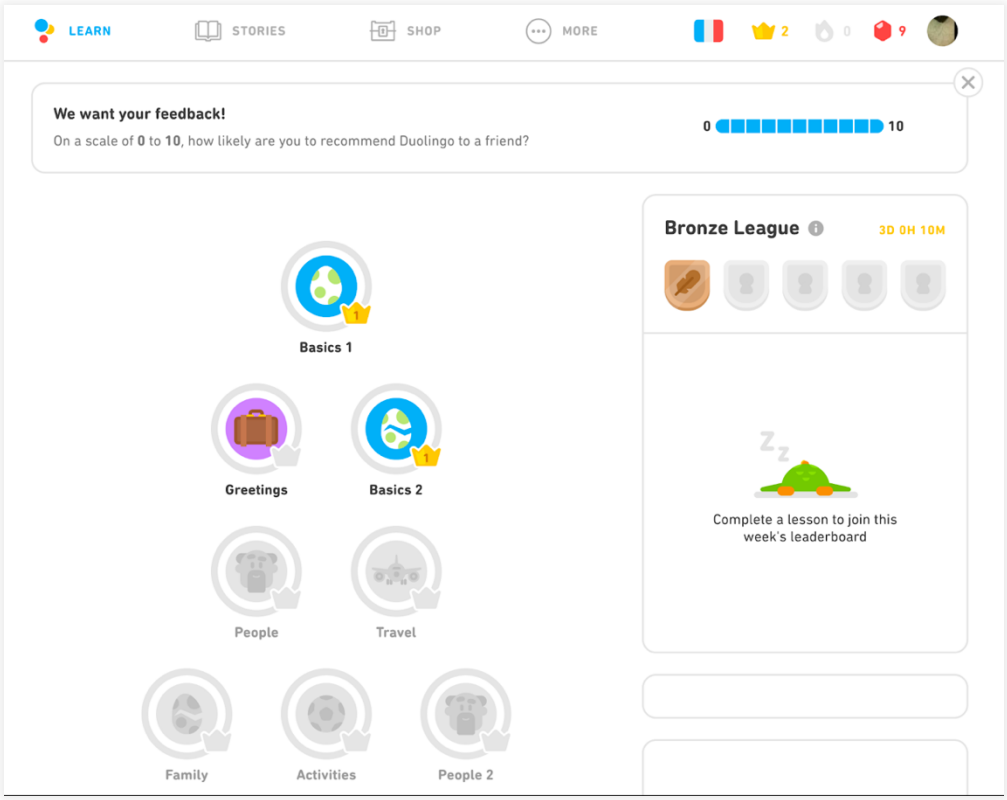

Fig.9. Duolingo, “Learn”

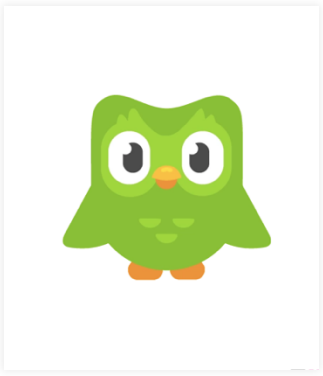

Fig.10. Fandom.com, “Duo.”

2.6 Relevant Design Criteria

The language learning app Duolingo highlights the significant design criteria of usability, interactivity and appeal - criteria that are similarly important to my own *Speak English* system. The concluding sections of this chapter, therefore, examine these criteria in more detail as background to the next chapter's in-depth discussion of how my *Speak English* system was actually designed.

2.6.1 Appeal

The use of likable characters such as 'Duo' offers a means of providing motivational appeal, entertainment and amusement (see Phillips et al.; Kinney and Ireland; Garretson and Niedrich). Liking the character is key to encouraging a positive response to what the character represents or to its message (Callcott and Phillips 73). This can be translated educationally into paying attention to what the character is asking the learner to do.

Research reveals that character likability relates its look (e.g., rounded and child-like appearance or humorously "silly" or "comic" - see Callcott and Phillips 74-75). Current trends in character appeal emphasise anthropomorphism or non-human creatures taking on human like aspects (Phillips et al. 216; Phillips and Wei-Na 15). The inclusion of likeable mascot characters, therefore, can be of benefit in learning media by increasing motivation to pay attention to advice or instruction.

Even at tertiary level, the vast majority of learners believe that learning should be fun (Whitton and Langan 10). Thus, if character mascots add a fun element to learning, this should be encouraged. In language learning, playfulness is seen as a means of encouraging the student to become a "playful creator" or "legitimate speaker" of the language (Bell 189; Bin Ai 282-283). For motivational language learning, therefore, it seems appropriate to incorporate fun and playful aspects to the design of learning media.

2.6.2 Usability

Educational resources must be designed for optimum usability - in other words, "Self-evident. Obvious. Self-explanatory." (Krugg 11). Given this, the design of learning materials should be "Simple and intuitive – easily understood regardless of experience," with no unnecessary complexity (Elias 112).

The need for simplicity in material design is, in turn, supported by theories of cognitive load. In order for learning to take place, working memory has to process information and transfer it to long-term memory. Working memory, though, is limited - and increased instructional complexity quickly uses up working memory's capacity, resulting in less information being transferred to long-term memory (see Sweller). Reducing cognitive load, on the other hand, optimises working memory (Taylor 63).

Cognitive load is increased or reduced in different ways (see Taylor). For example, using two sources of visual information simultaneously (e.g., an image and text) increases cognitive load; however, using both visual and audio channels simultaneously does not similarly increase loading (i.e., using diagrams and audio (1x visual,1x audio) is better than using diagrams and text (2x visual)). Best practice, therefore, suggests using visual and audio information together. In a language learning situation, even when instructional complexity is low, it is beneficial to use written text with narration (although additional visual information may not be an issue if the learning is being repeated or delivered at a slow pace) (ibid. 65-66).

Constructive mental effort (or cognitive processing) is also increased through 'germane load' (Costley and Lange 28). Nevertheless,according to Costley and Lange - and in contrast to cognitive load - germane load apparently "directly contributes to learning", with the "total diversity" of a variety of media (sound effects, music, emphasised words, animated text) resulting in increased understanding (ibid. 40-41).

While conclusive results in the field of cognitive load/presentational methods remains contentious (Tabbers et al. 71), it is apparent that learning design requires consideration to be given to simplicity of visual presentation and the use of a variety of media (Bashir 103; Costley and Lange 40-41).

2.6.3 Interactivity

In the relevant language learning sense, interactivity means simply 'interacting' with the medium of instruction - for example, responding through writing, speaking, pressing a button, etc. In a modern context, such interaction is increasing through the use of mobile platform (e.g., a personal device such as a smartphone or tablet). However, the most important form of interactivity in collaborative language learning is *interpersonal* interactivity - i.e., interaction between the learners themselves - with optimal learning outcomes dependent on a "discussion-centric" interactive learning environment (Ansarian and Lin 10).

The dilemma, therefore, with use of mobile platforms is to ensure that students interact with each other rather than simply with their devices. Any app-based language learning system must focus on facilitating social interaction and collaboration in order to maximise communication and language use (an important consideration in the design of *Speak English*, as discussed in Chapter 3).

Using mobile platforms for interactive learning also adds to the variety of classroom presentation, as well as offering an accessible and ubiquitous medium for instruction. BYOD ('bring your own device') is now a rapidly growing educational trend (Brown and Mbati 118, 126). Modern language learning systems (such as *Speak English*) therefore need a mobile platform component. In this respect, small screen size is the biggest challenge for mobile learning. Limited space cannot be compensated for by increasing visual complexity as this increases cognitive load (Harper et al. 16). Here, however, the advantage of a mobile platform is that students can 'click' to access further pages of simple instruction; interactivity (i.e., by clicking icons) can therefore maximise available space while decreasing complexity (Churchill and Hedberg 885).

In addition, interactivity may enhance learner motivation (Domagk et al.2010: 1024-1025). Here, *hedonic motivation* provides gratification through enjoyment, whilst *utilitarian motivation* is a conscious action for a specific purpose (such as seeking information) (Parker and Wang492; Chih-yu Chin et al. 581). These two types of motivation are also the most likely to encourage the clicking of buttons in a learning situation (i.e., just for fun or to find information). Presenting amusing, interesting and entertaining content that is also useful, likable, helpful and informative is therefore of great importance to any learning system (Chih-yu Chin et al. 589).

2.7 Summary

This chapter has reviewed design thinking theory and theories of language learning and teaching, and drawn contrasts and parallels between the two. A major argument, developed through reference to research literature on design thinking in an educational context, is that design thinking processes (such as problem finding, empathy, ideation and the like) offer clear benefits to student learning. This argument is supported in the review of design thinking in specific language learning environments.

At the same time, however, the lack of design thinking elements (such as risk-taking and collaboration) has been highlighted in the discussion of existing language learning systems. While Duolingo similarly lacks such elements in its actual language learning system, the design aspects of Duolingo highlight the important criteria of appeal, usability and interactivity - thus providing a link to the design elements incorporated into the *Speak English* system described in the following chapter.

Chapter 3: Designing the *Speak English* System

Having examined in detail the relevant theoretical background and design criteria in the previous chapters, this chapter turns to the actual design of my *Speak English* language learning system.

3.1 Speak English Design Research - Background and Context

As noted above, there is a pressing need for learners to be able to communicate effectively in English (see also Ushioda 101). In countries such as China, despite official demands for students to be able to speak in English, most learners find effective English communication elusive (Shen, Suwanthep & Zhang 98-99), whis is often due to pressures such as anxiety, fear of errors, lack of confidence and lack of opportunity (Williams 136; Gkonou et al.; Lui 1050).

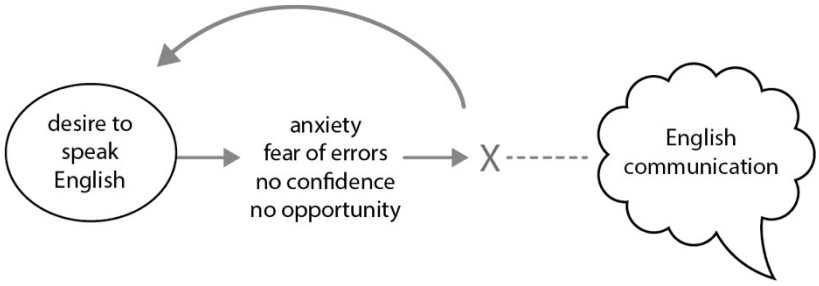

Fig.11. Learner needs

Given this clear 'gap' in much current English language teaching/learning, the aim of this project is to create a learning system that would motivate second language learners to participate in conversation, increase their language production and help them overcome their English communication difficulties.

In reviewing language-learning pedagogy, I highlighted the fact that the communicative language learning method of cooperative language learning was closely aligned with design thinking, with both approaches sharing collaborative frameworks in which communicative activities are undertaken. The benefits of using design thinking in language learning - for example, in offering an authentic learner-led approach in a scaffolded, socially interactive and generative process - were also emphasised.

Given this, my strategy was to use design thinking to inform the design of a cooperative, classroom-based language-learning system. In addition, in order to exploit the motivational aspects of "interpersonal interaction" (Nielson 110), the *Speak English* system is designed to be

used by English language learners in a face-to-face in a classroom situation. Similarly, learners are encouraged to take responsibility for their own learning so that teamwork acts as a motivator, with tutors acting as facilitators rather than leaders (see Ning and Hornby 115, 121 for further discussion).

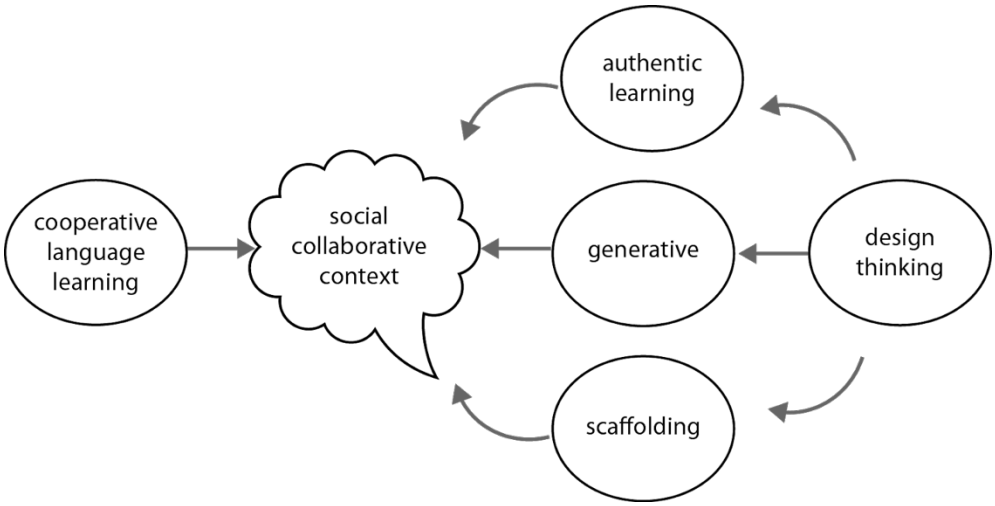

Fig.12. Design thinking and cooperative language learning process combination

3.2 The *Speak English* System: Initial Development

A design thinking approach (see Koppen and Meinel 26) was adopted to develop the initial *Speak English* process. As a result of the research reviewed in the last chapter, problem framing was identified as a particularly appropriate design thinking process for my language learning system. This method was chosen as it makes use of the discussional stages of design thinking *(empathy, define, ideate)* while omitting the practical solution stages (*prototype and test*).

Problem framing is used to discover or find problems rather than solve problems (Gray 2018: 299), and in *Speak English* the aim is to use problem framing to generate conversation rather than make things.

3.2.1 The Phases of the Speak English Process

As can be seen in figure 13, the design thinking process follows a series of phases, with problem framing operating in the first three phases - *empathy, define, ideate. Speak English* is a similarly phase-based process within which problem framing operates. However, as shown in figure 14 below, I introduce different, more appropriate terminology (as explained in section 3.2.2.)

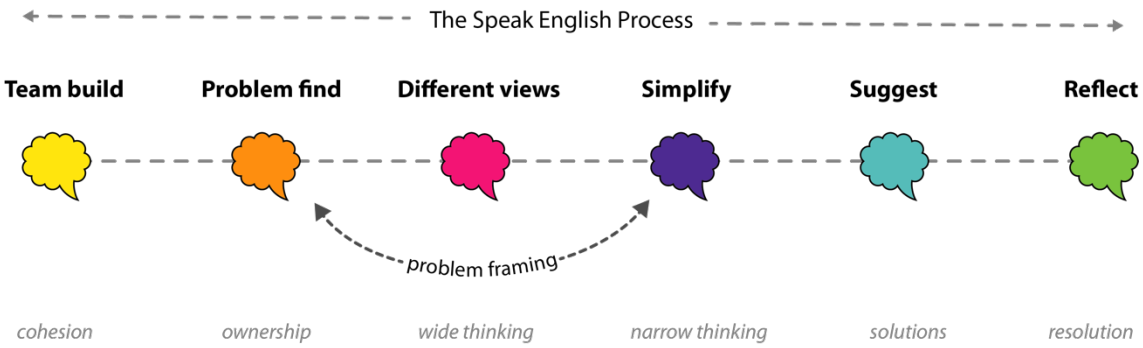

Fig.13. Speak English phases. After a preliminary team build phase to mould groups of learners into a cohesive working teams illustrated above, the next three phases of the Speak English process - problem find, different views and simplify - follow design thinking's method of problem framing.

Here, learners find problems (the *problem find* phase) based on their own personal experiences or concerns. This learner-led approach allows students to choose their own personal and meaningful topic of discussion, while enhancing motivation by giving learners ownership and control of their own learning (see Iversen et al. 1-2 for relevant discussion). The problem framing continues in the *different views* and *simplify* phases where learners first adopt a 'wide thinking' perspective followed by a 'narrow thinking' stage that defines a simplified problem. Following *different views* and *simplify* are the *suggest* and *reflect* phases, which are the *Speak English* way of generating problem solutions and resolution.
In contrast to the design thinking process (figure 13 above), the 'end products' in *Speak English* are not prototyped objects but, rather, spoken suggestions of possible solutions. There is no need to reach a single preferred solution as the *suggest* phase is a discussional exercise not a 'find the correct answer' exercise. The *reflect* phase serves as a resolution to the problem framing process in which learners reflect upon their speaking performances throughout the process.

3.2.2 The Speak English Phase Terminology

The *Speak English* process has drawn on design thinking to formulate its own process stages. I began by using standard design thinking terminology but gradually replaced this by terminology that more accurately reflected what is done in each phase of my developing system. The following examples of how I progressively refined *Speak English* shows how this terminology changed during my own personal journey through the design process.

3.3 The *Speak English* System: Progressive Development

Through ongoing ideation and iteration, the process of *Speak English* was shaped into a framework of a core learning journey of six phases (see figure 14). Visualisations of the process helped me to see connections between phases and then to simplify the planned activities within them. For example, figure 15 (below) shows wide and narrow thinking, and repeated tasks used

in different phases. Figure 16, meanwhile, illustrates how key questions and a central core gave me a clearer picture of the most important elements for my proposed language learning system.

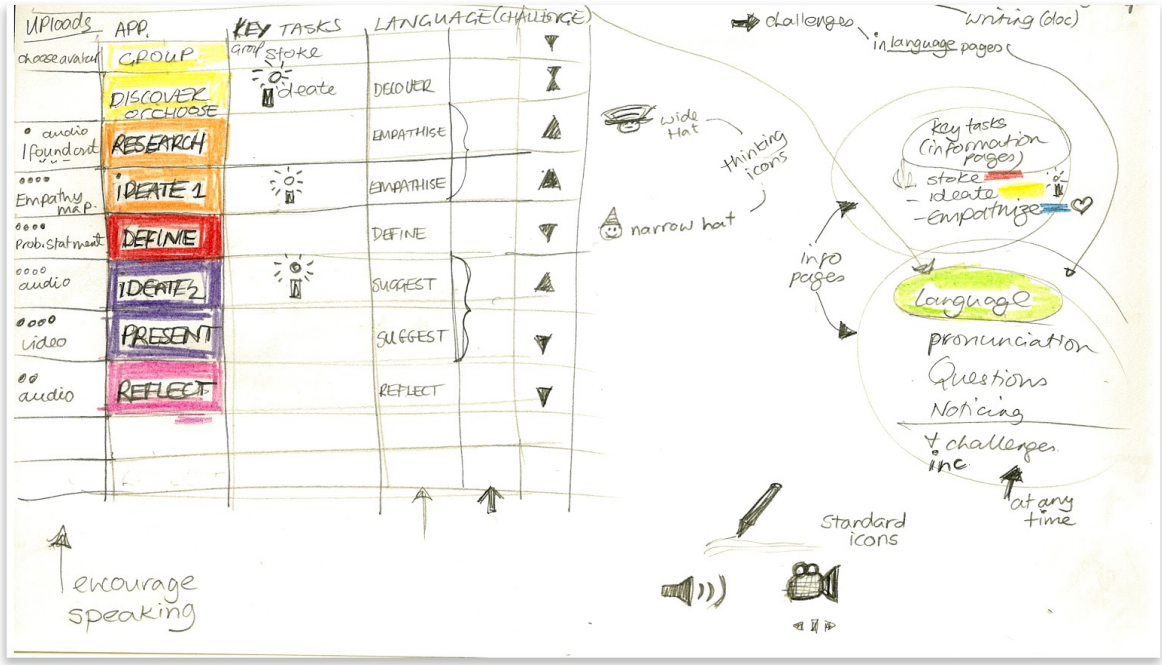

Fig.14. Visualisation 1 - wide and narrow thinking, and repeated tasks

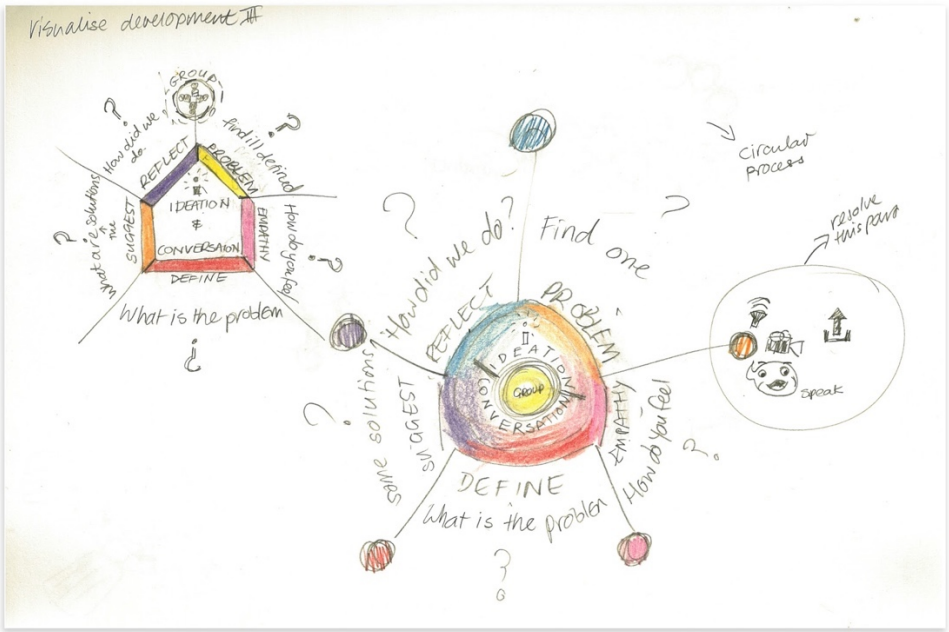

Fig.15. Visualisation 2 - key questions and a central core

My own ‘wide thinking’ - plus further research into design thinking and educational literature - revealed that there were many important elements to consider. For instance, educational- and industry-based design thinking strategies pointed to the inclusion of design thinking method tools, while language learning approaches indicated the need for supporting language learning activities. As a result, and as illustrated in figure 17 below, the *Speak English* learning system developed into a matrix-like structure incorporating a core process supported by the additional activities such as *design thinking methods tools, language help* and *assessment* (see, for example, IDEO methods; Goh 248; Johnson 301-323; Ansarian and Teo 45).

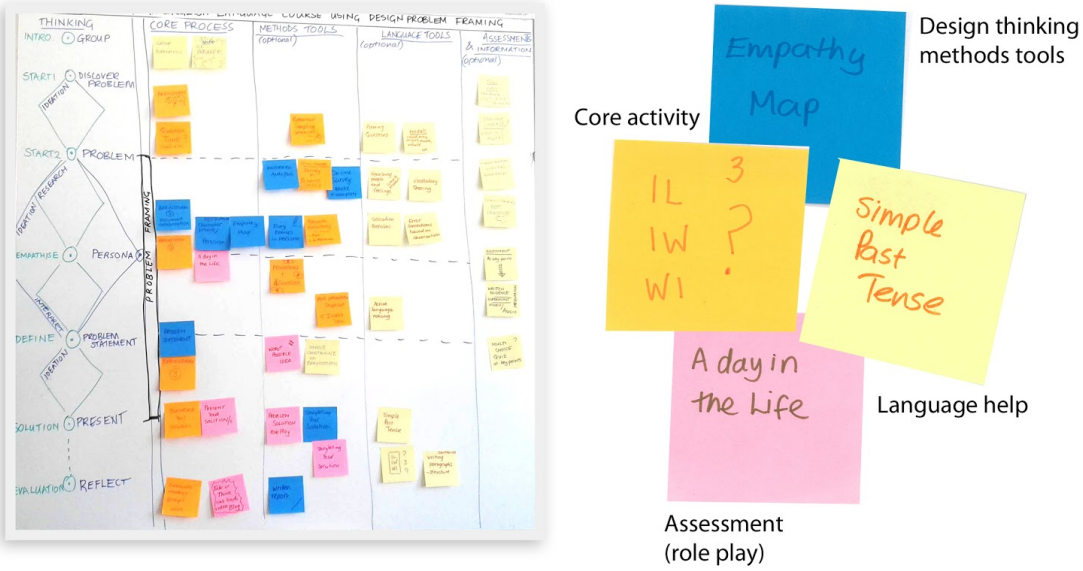

Fig.16.Core process with additional design thinking methods tools, language help activities and assessments

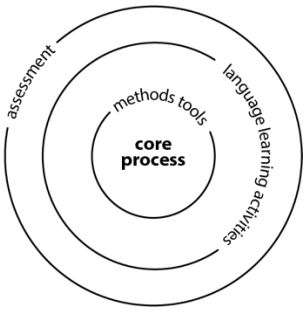

Fig.17. Core process with method tools, language strategies, assessment

Whilst all these elements were important, the project constraints (time, resources, limited access to learners, etc.) meant condensing *Speak English* into a manageable entity. In order to achieve this, I stripped away the optional tasks and concentrated on the core process elements. The process was re-designed as a set of practical 'what to do' outlines that summarised the activities and tasks to be done in each phase. On-going testing and ideation continued throughout this system development, during which the 'what to do' activities - that is, the tasks that the students would be expected to do - continually evolved. These 'what to do' outlines (see figure 19) gave me the opportunity to experiment with the internal steps within phases and then reuse them when necessary.

TEAM BUILD *App*	*PRBLEM FIND* *Game*	*EMPATHISE* *Booklet*	*CONSOLIDATE* *Lesson Plan*	*SUGGEST* *Video screencast*	*REFLECT* *Matrix*
Time Limit 30 minutes	***Time Limit 30 minutes***	***Time Limit 30 minute***	***Time Limit 30 minutes***	***Time Limit 30 minutes***	***Time Limit 30 minutes***
3 to 4 per team *(NOTE & VOTE) BRAINSTORM* *Write and place the problem in view.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* *Spread the notes out, read and think about all the ideas.* *Each person in turn reads or describes an idea and comments using language help.* ***Vote** – each person votes for their top 3 ideas using tick marks or counters.* *(TEAM TALK 1)* *Collaborate - As a team and choose your final solutions* *Research icon* *Upload you name and icon*	*Use the problems page or find your own problem.* *(NOTE & VOTE) BRAINSTORM* *Write and place the problem in view.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* *Spread the notes out, read and think about all the ideas.* *Each person in turn reads or describes an idea and comments using language help.* ***Vote** – each person votes for their top 3 ideas using tick marks or counters.* *(TEAM TALK 1)* *Collaborate - As a team and choose your final problem* *Research your chosen problem* *Record* *Dictate 2 versions of your problem (the same problem phrased differently).*	*Write and place the problem in view.* *(TEAM TALK 2)* *Each person speaks communicating their ideas about or experiences of the problem.* *Include:* *when, where, who, what, what, why, your feelings and what you said/say* *In turn recap what each person said and clarify (choose on person each)* *J said …* ***A new perspective*** *In turn comment on **another (an outside person)** person's view of each situation.* *Their feelings what they felt and said/say* *Record empathy comments* *Dictate 4 comments one from each person.*	*Write and place the problem in view.* *Listen to the empathy comments.* *(TEAM TALK 3)* *Take turns to ask and answer these questions:* *Use names:* *Rainbow, explain who you think has the problem?* *Jed, what is the problem from your viewpoint?* *Mina, what would be the ideal situation?* *Olly, what are the wider issues of this problem?* *Record 4 questions and answers.*	*Think of solutions* *(NOTE & VOTE) BRAINSTORM* *Write and place the problem in view.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* *Spread the notes out, read and think about all the ideas.* *Each person in turn reads or describes an idea and comments using language help.* ***Vote** – each person votes for their top 3 ideas using tick marks or counters.* *(TEAM TALK 4)* ***IL IW WI** - Each person in turn reads or describes a solution idea and comments using:* *"I like this because* *I think* *What if?"* *Record 4 comments* .	Listen to the consolidation and solution recordings. *(TEAM TALK 5)* *Practice and prepare a conversation based on your problem process.* *You and your team decide what to talk about.* Record 3 minutes of conversation for self-reflection, peer or tutor assessment. Using the **review box** tick performance successes and areas for improvement for one participant. ***Review Box :*** ***tick when you hear:*** • *Asking realistic questions* • *Helping language* • *Clear language* • *Interesting comments* • *Thoughtful comments* • *Giving reasons for preferences* • *Pausing or hesitating* • *Language you cannot understand*

Fig.18. A 'What to do' example page showing an earlier stage in the evolving process (see appendix A,B and C for more examples)

The final 'what to do' outline of *Speak English* presents the six phase problem framing process for the students to follow: *team build, problem-find, different views, simplify, suggest* and *reflect* (illustrated in figure 4 above). At specific points in the process, learners experience ideation and conversation in the form of *brainstorming*, *idea sharing*, *turn-taking* and *team talk*. Additional tasks (researching, recording and listening) support the main activities and at key points 'speaking help' encourages learners by offering suggestive starting and helping strategies. Of key importance is the scaffolding embedded in the *share ideas* and *team talk* sections, in which learners progress from turn-taking to free conversation.

TEAM BUILD Find a team name and create an icon	PROBLEM FIND find-problem	DIFFERENT VIEWS See a new perspective	SIMPLIFY Frame the problem	SUGGEST Discuss some solutions and opinions.	REFLECT Asses how we did
Time 60 minutes	**Time 50 minutes**	**Time 60 minutes**	**Time 40 minutes**	**Time 40-60 minutes**	**Time 20-40 minutes**
Tutor organises teams of 3-4 With tutor guidance share info. about each other **15 mins** Brainstorm Write down what you need to find out. Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.) **15 mins** Share Ideas Spread the notes out, read and think about all the ideas. **Read language help.** Each person in turn reads or describes an idea and comments **Vote** – each person votes for their top 3 ideas using tick marks or counters calculate a winner. **15 mins** Each person sketches a version of the chosen icon. Choose a final version together. Upload your chosen name and icon **15 m**	Tutor helps think about problems. How many? Categories? Ill-defined. **15 mins** Brainstorm Write down what you need to find out. Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.) **15 mins** Share Ideas Spread the notes out, read and think about all the ideas. **Read language help.** Each person in turn reads or describes an idea and comments **Vote** – each person votes for their top 3 ideas using tick marks or counters calculate a winner. **15 mins** Record Dictate 2 versions of your problem (the same problem phrased differently). **5 mins**	Tutor helps think about helping each other, Write and place the chosen problem in view. **10 mins** (TEAM TALK 1) **Use language help.** Each person speaks communicating their ideas about or experiences of the problem. Include: when, where, who, what, what, why, your feelings and what you said/say In turn recap what each person said and clarify (choose one person each) J said … **15 mins** Research your chosen problem using the internet. **15 mins** **A new perspective (empathy comments)** In turn comment on **another (an outside person)** person's view of each situation. Their feelings what they felt and said/say **10 mins** Record empathy comments Dictate 4 comments one from each person. **10 min**	Write and place the chosen problem in view. Listen to the empathy comments Tutor helps with question forming. **15 mins** (TEAM TALK 2) **Use language help.** Take turns to ask and answer questions about: Use names: Who has the problem. (issue) What an ideal situation would be. (vision) Wider issues related to the problem. (issue) How we could make things better. (method) **10 mins** Record 4 questions and answers. **15 mins**	Think about possible solutions to the problem **5 mins** Brainstorm Write down what you need to find out. Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.) **15 mins** (TEAM TALK 3) **Use language help.** **IL IW WI** – The team discusses their solution ideas and their experiences of the process using: "I like I think What if?" **20 mins** Record 3 minutes of conversation for peer or tutor review or assessment. It can be authentic or rehearsed. . **0-20 mins**	Listen to the consolidation conversation recordings. **5 mins** Listen again (more times and with help if needed) and complete the **review box** tick for one participant from a different team. **5-20 mins** ***Review Box :*** ***tick when you hear:*** • Describing ideas • Giving reasons for preferences • Helping each other (questions/names) • Clear language • Pausing or hesitating • Language you cannot understand Return your comments to the participant. Complete the self-reflection part to assess your strengths ans areas for improvement. **10 mins**

green=brainstorm **Pink=share ideas** **yellow=team talk** **blue=other activity.** ***language help.***

Fig.19. Final speak English 'what to do' page (see appendix D for detail)

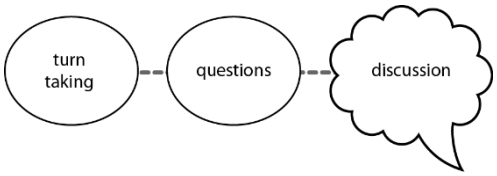

Fig.20. Speak English share ideas and team talk scaffolding

My main focus throughout the project was to utilise the potential that design thinking has to offer in enhancing educational experiences for cooperative language learners - and thus help language learners become more fluent. As ideation and research continued it became evident that the most important aspects of design thinking were problem finding, empathy, ideation and iteration. Problem finding creates authentic and meaningful learning; empathy develops team cohesion, encourages risk-taking behavior and potentially increases language production; ideation generates language; and, iteration provides a structured and repeatable scaffold (see Gkonou et al. 35, 215; Liao et al. 214-219; Melles et al. 3; Goh 248).

More importantly, I realised that the process itself was a scaffolded structure in which learners could progress in simple guided stages towards freer conversational activities. The scaffold is embedded in the system itself and the whole process can be repeated over and over again using different problem scenarios and different learning group formations. Thus, design thinking provided the key communicational language learning benefits in *Speak English*.

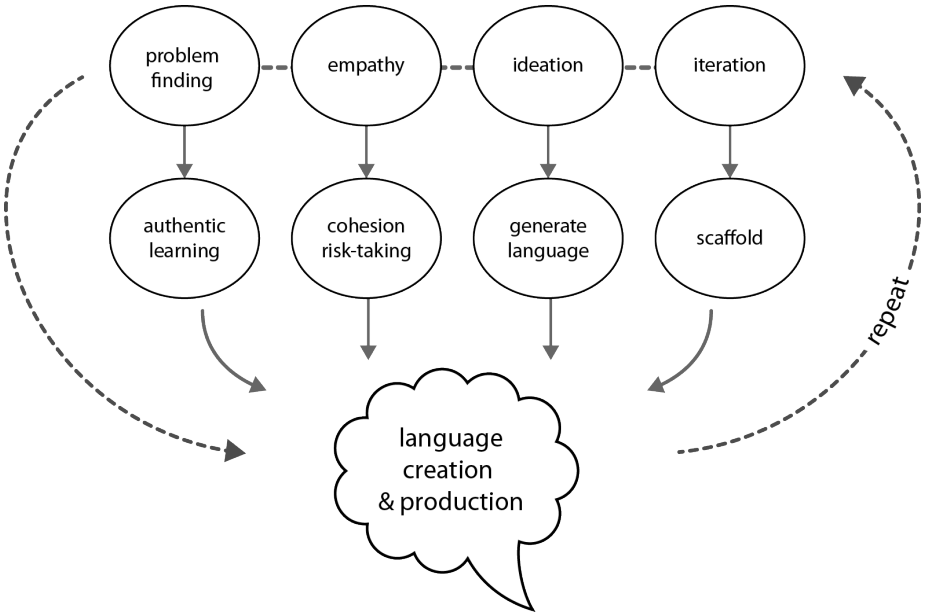

Fig.21. The benefits of Speak English inspired by design thinking

3.4 Scaffolding

In cooperative language learning, it is important to scaffold speaking techniques to develop confidence and cooperative learning skills (Kim 419). *Speak English* is scaffolded by the problem framing process itself, which progressively builds language confidence in stages.

As discussed below, 'sentence starters' are also included in the *Speak English* system to offer additional scaffolded support for learners. This is based both on research findings that scaffolded interaction improves fluency in language learners working together (Walqui 167) and my own anecdotal observation that sentence starters are useful in helping speakers begin conversations and for listeners to understand the intended message.

Within the *Speak English* system, scaffolding strategies (see the *brainstorming*, *idea sharing*, *speaking help* and *team talk* sections below) are repeated to increase learners' familiarity with the process and confidence in speaking. The *Speak English* process as a whole is also designed to be repeated so it can be reused again and again with no additional preparation. As learners provide their own problems, each process iteration provides a new discussion. After a set period of time, learner groupings can be re-organised and the process can be repeated with different perspectives in a new team.

Design thinking has provided *Speak English* with strategies that can be delivered in a clearly structured and repeatable (iterative) process. Unlike traditional problem-based learning and enquiry-based learning approaches - which rely on the teacher taking responsibility for the scaffolding of their processes (Melles et al. 3) - *Speak English* provides explicit strategies to guide delivery. In this way the system benefits both learners and tutors as the process is clearly outlined, easy to follow and repeatable.

3.5 *Speak English* from a Learner's Perspective

Research clearly indicates that a design thinking approach has important benefits for language learners who need to improve their English fluency. Throughout the project it has been a major priority to investigate how these benefits could be integrated into a learning system and how the system could theoretically work in a classroom. As discussed above, the final system design was developed through a practical process of iteration, informal testing and refinement, supported by relevant theory. In the following sections I outline more precisely how the final *Speak English* phases and activities incorporated this theory to work towards creating a practical method of improving language fluency.

In 3.5.1-3, I discuss key activities repeated in phases: *brainstorming* and *sharing ideas, speaking help, turn-taking* and *team talk*. Sections 3.5.4-9 then show the phase sequence that students follow: *team build, problem find, different views, simplify, suggest* and *reflect*. Finally, 3.5.10 summarises and concludes the section.

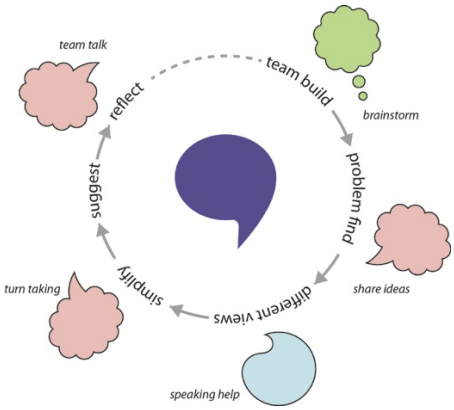

Fig.22. Phases and key activities

3.5.1 Brainstorming and Sharing Ideas

Studies have shown that the ideational techniques of design thinking can improve motivation and enhance creativity in learners from all disciplines. For example, *post it note brainstorming* is considered one of the most helpful aspects of educational design thinking (Richie et al. 15). In language learning, creative idea sharing as part of the learning process can also foster creative language construction - which is why it appears as a key activity in *Speak English*.

Post it note brainstorming is undertaken in the first, second and fourth stages of *Speak English*, with the *share ideas* method based on the idea of learners using post it notes to note or sketch as many ideas as possible (see Curedale 279, 283). And while some advocates of this method suggest recording as many as 100 ideas in one session (Carroll 40), personal experience and anecdotal research indicates that about 10 ideas from each participant would be more appropriate for the first brainstorming sessions. This method is useful for language creation (Liao et al. 214-219) and also provides a concrete action to perform. Learners are then encouraged to reflect on the brainstorm results before moving on to a speaking activity. To avoid interaction being dominated by one or two students (Littlewood 245), learners take turns to select and describe ideas. They are encouraged to use the *Speaking help* 'function' (described below) and, when all the ideas have been discussed, each person individually votes for their three 'favourites' indicating their choices with tick marks or counters. Finally, a 'winning' idea is chosen by the team.

Fig.23. Brainstorming and sharing ideas

Fig.24. Turn taking cat

3.5.2 Speaking Help

The importance of developing risk-taking skills in both design thinking and language learning was identified in section 2.3, where it was also suggested that empathy - by minimising anxiety - provides a means of encouraging risk-taking behaviour. Educationally, Carroll et al. (39) note that risk-taking is promoted by the use of collaborative design thinking techniques; Cooper (236), meanwhile, advocates the use of empathy to promote engagement and cooperation.

To promote empathy, a *Speaking help* function (see figure 26 below for examples) is used at any point in the *Speak English* process to encourage learners to help themselves and each other with language problems. *Speaking help* is designed to encourage participation through empathy and language scaffolding by providing a set of starter phrases and questions that learners can use to begin and encourage conversation. Empathetic advice encourages learners to think about how everyone shares feelings and has similar difficulties when speaking in English.

Encouraging students to ask for help by using questions and names to facilitate conversation also gives learners responsibility for initiating speech.

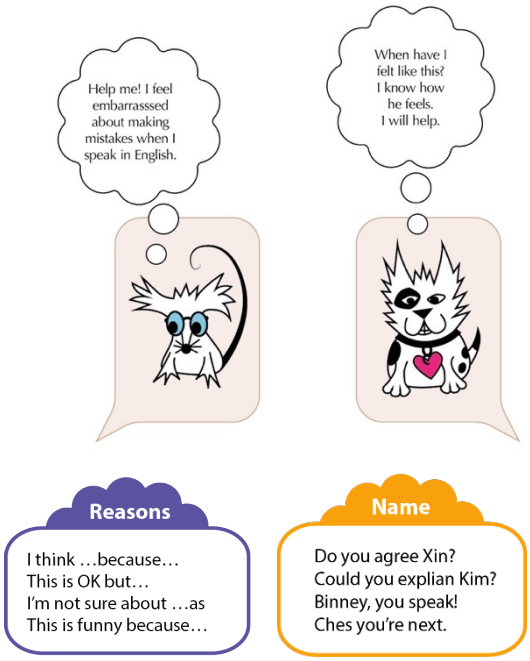

Fig.25. Help characters (the 'thinking' mouse and dog) and help starter sentence examples

3.5.3 Turn-Taking to Team Talk

The *brainstorming* and *turn-taking* methods are followed by directed *team talk* conversations that build to a freer final discussion using "I like, I wish, What if," statements and questions (Doorley et al. 29-30). Teams then produce a two-minute recording of their conversation which is used for feedback and reflection.

Fig.26. Recording icon

3.5.4 Team Build

The *team build* phase makes use of "internal empathy", a crucial aspect of design thinking that provides a 'safe' collaborative environment where participants can feel comfortable (Koppen and Meinel 26). In design thinking, internal empathy contrasts with the concept of external empathy used at the start of a project to establish user needs (ibid. 32). While *Speak English* uses both internal and external empathy, the *team build* phase focuses on internal empathy to enhance team cohesion at the very start of the *Speak English* process.

Here, learners are assigned to small mixed groups where their initial task is to create their team identity. The formation of a closely-bonded team provides a learning space where team members can take risks and engage in conversation. Vermette and Kline 2017 (1-2) suggest that that groups of five or less are organised by tutors and remain together semi-permanently for this sort of activity. For *Speak English*, however, I suggest 3-4 as the optimum group size as this is large enough to facilitate conversation and small enough to be non-intimidating (also for pragmatic reasons, groups of three or four may be formed in classes of any size larger than five learners). To reflect 'semi-permanence', I suggest a sequence of 3 to 4 problem framing cycles before changing groups.

The initial simple, clearly-focused, team-based task of finding a team name and creating an icon is intended to transform a group into a team, with this positive experience providing a basis from which more complex tasks can be undertaken. To do this, teams first gather information about each other before brainstorming and sharing ideas to find their name and icon. When the name and icon have been chosen each team member then sketches a version of the icon. A 'winning sketch' is then selected for upload or display along with the team name.

The *team build* phase is not required in subsequent *Speak English* sessions unless a new team has been formed.

3.5.5 A Learner Led Journey – Problem Find

Design thinking's concept of problem finding provides a constructivist, learner-led educational approach through its focus on personal and/or real world issues. The literature reviewed in Chapter 2 indicates that using a problem finding approach increases learner motivation while providing material that necessitates the generation of authentic and/or creative responses. In *Speak English*'s 'problem find' phase, the tutor encourages learners to think about their problems before finding a problem to discuss. The discussion problem may be simple or complex and can originate from any source - for example, it may be personal, social, practical or ethical. However, it must be ill-defined and not easy to solve as this is essential for the later problem framing phases.

Brainstorming and *idea sharing* are here used to find a suitable problem for discussion. The process is the same as in *team build*, where learners find a 'winning' problem to discuss. In this learner-led context, the tutor takes on the role of facilitator whose aim is to guide learners towards taking responsibility for their own learning - in other words, the tutor guides the learning rather than delivering it (see Melles et al. 2).

3.5.6 Different Views

In the different views phase of Speak English, learners use turn taking to describe their experiences or perceptions of their chosen problem. They then research (e.g., by searching online on their smartphones) before describing the problem from someone else's point of view. As mentioned earlier, design thinking refers to this as "external empathy" that serves to identify user needs (Koppen and Meinel 27). In Speak English, external empathy or different views is included to widen the problem space and increase conversational possibilities. Statements of these different views are then recorded. (How complex or detailed this phase becomes is, of course, dependent on the level of English of the particular class of students.)

3.5.7 Simplify

Simplify is the phase in which learners define the problem. In order to see the problem more clearly, learners ask and answer questions about it. First the participants listen to the empathy comments recorded in the preceding different views session. As illustrated in figure 28 below, students then ask and answer questions about the problem issue (who is affected) and the vision (an ideal situation). All team members join in to record three to four questions and answers before solutions are suggested.

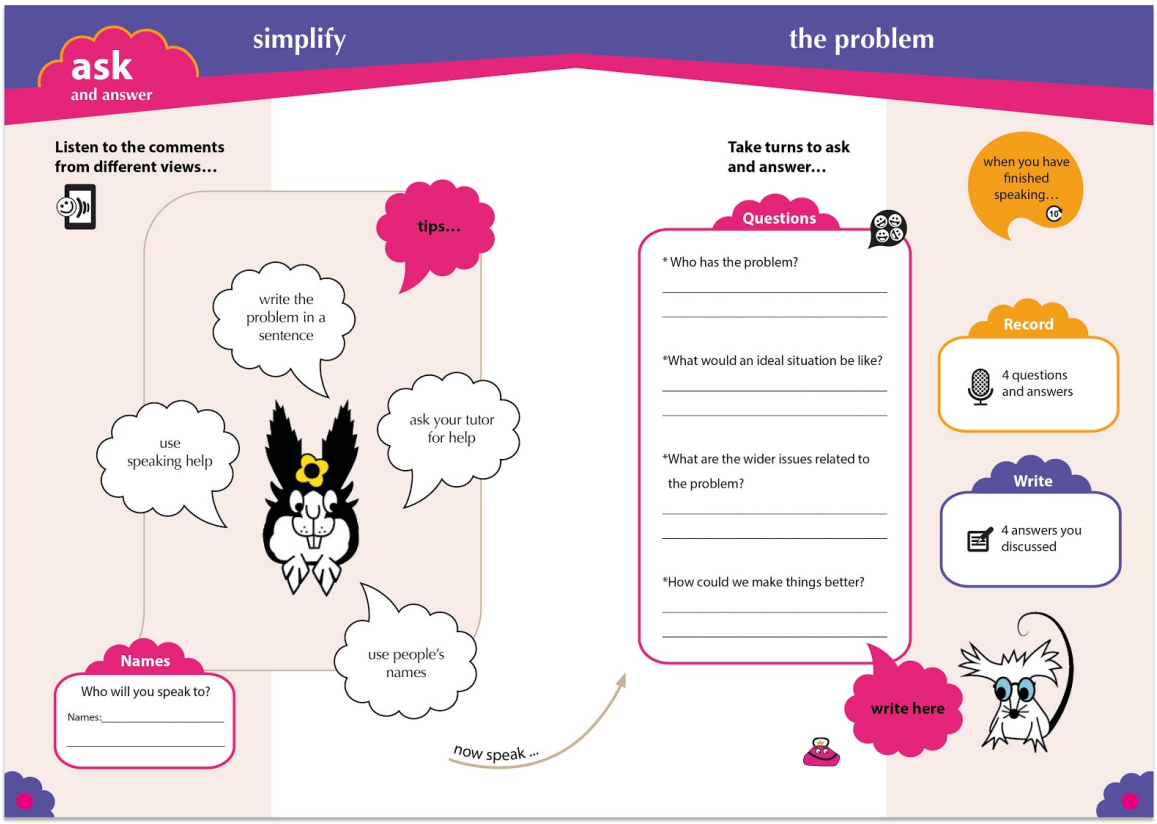

Fig.27. Simplify phase worksheet

3.5.8 Suggest

Initially, suggesting solutions to the problem is done by brainstorming solution ideas in the same way as in previous phases. But instead of then sharing ideas by turn-taking, participants discuss their contributions and give feedback using the simple starting phrases “I like, I wish, what if” (following Doorley et al. 30). It is not necessary to find an ideal or correct solution to the problem and participants should be encouraged to additionally comment on their experiences during the whole *Speak English* process. The aim of this phase is to generate discussion by using the brainstormed suggestions and the starting phrases. A 2-minute recording is required involving all team members. Depending on the abilities of the speakers, this could be unstructured authentic communication or a re-enacted version of the discussion.

3.5.9 Reflect

In the reflect phase, teams listen to another team’s 2-minute recording and complete the reflection matrix (figure 29) for one participant each. After this, the documents are passed to the chosen speakers, who then complete the ‘self-reflection’ section of the reflection matrix by considering their strengths and areas for improvement.

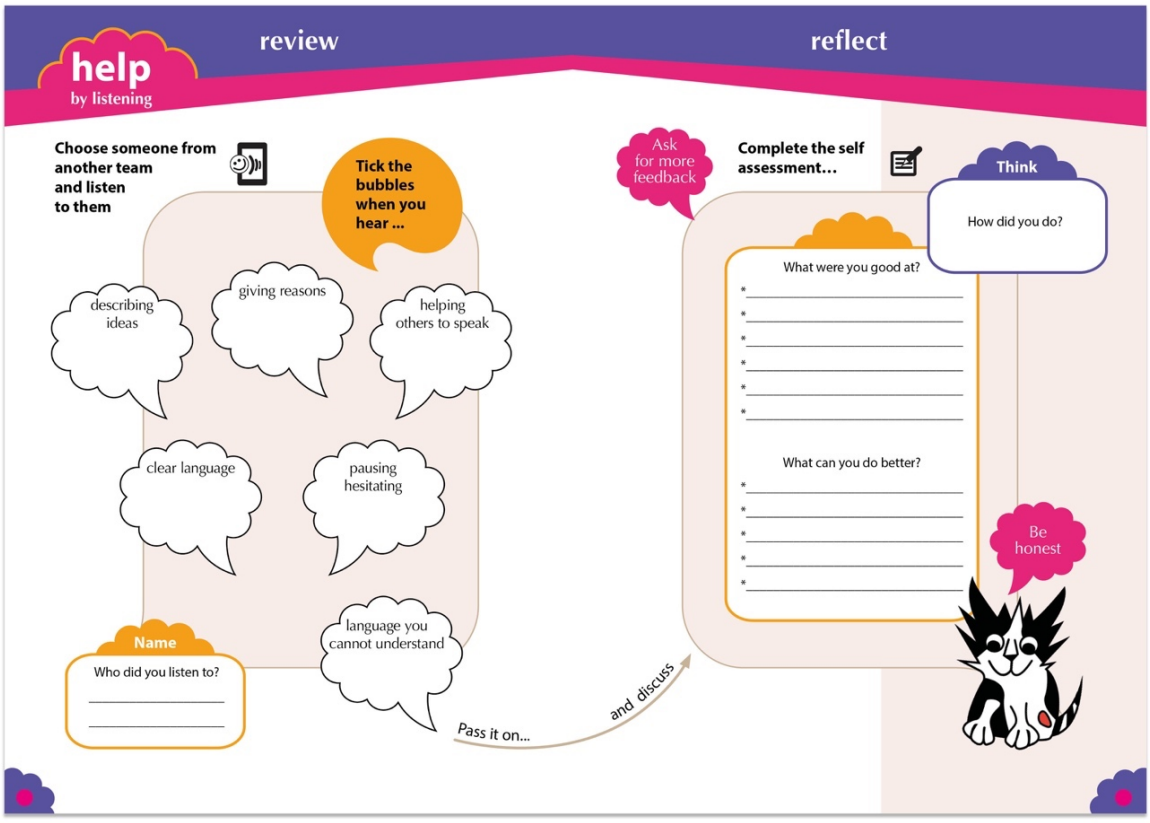

Fig.28. Reflection matrix worksheet

3.5.10 Summary

Figure 30 shows a section of a visual illustration of all the phases that learners work through during the *Speak English* process.and elements of *Speak English* – Phases - *team build, problem-find, different views, simplify, suggest solutions and reflect.* Elements - *speaking help, brainstorm, share ideas, turn-taking and team talk* - (See appendix E for further detail.)

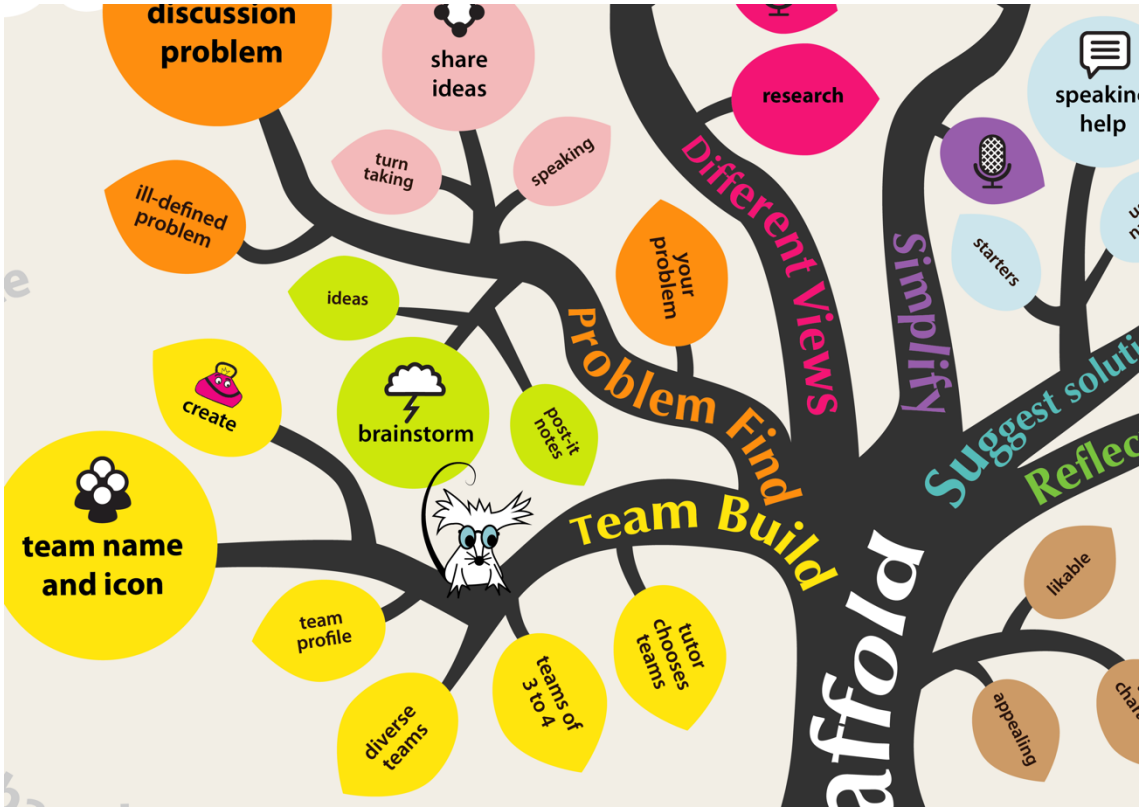

Fig.29. Section of the Speak English process tree diagram showing all the relevant phases and elements – team build, problem-find, different views, simplify, suggest solutions, reflect, brainstorm, share ideas and help. (See appendix E for the full diagram)

3.6 The 'look' of the Speak English System

The focus of this design research project was to create a language learning system that would encourage and facilitate language production and fluency in a classroom setting. My initial design challenge, therefore, was to create an 'end product' - that is, the *Speak English* system described above.

Additionally, however, it was essential to pay attention to ways of presenting *Speak English* in an attractive and accessible way so that learners, tutors and language education institutions could understand the system and how it worked. This presented an additional design challenge -

namely, highlighting or ‘selling’ *Speak English* to potential users as a system rather than just an end product.

The variety of media discussed below, therefore, serve two purposes: first, to make *Speak English* (as an end product) easy, fun and worthwhile to use; secondly, for the system itself to have immediate overall appeal to potential users.

3.6.1 The theme

In light of the popularity and success of Duolingo, I decided to design a simple, appealing and colourful interface. The simplicity of design reflected the system itself by being small-scale, simple and easy to use. This also serves to reassure learners and educators that using and learning through *Speak English* is easy, non-stressful and fun. Speech bubbles reflect the communicative nature of the system, while four animal characters accompany learners on their journey in order to increase engagement. These characters are intended to add likability by their humorous, comic and child-like appearance so that their language learning advice and instruction is followed enthusiastically. In addition, the fun feel is intended to encourage learners to adopt a playful attitude to learning and so foster their creative language construction. There are four animal characters to represent each member of a team of four diverse learners.

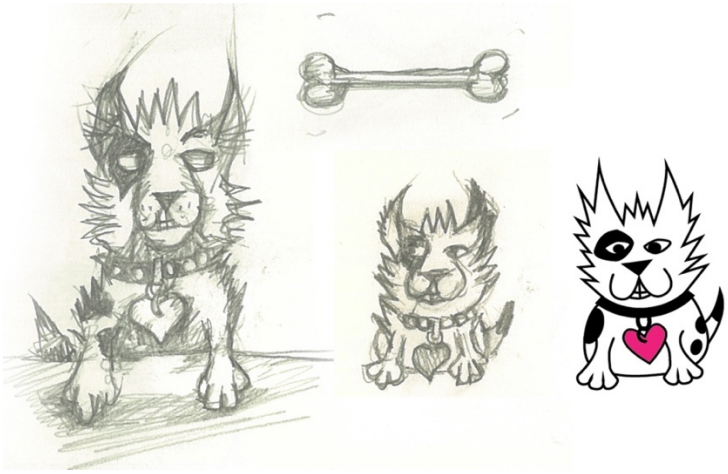

Fig.30. Character development

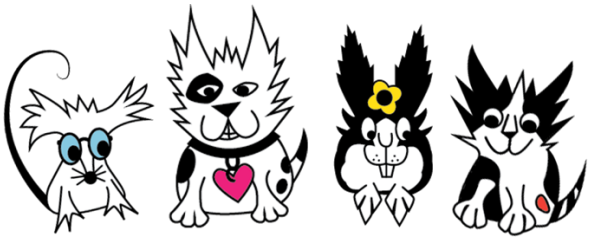

Fig.31. Four animal characters (for more detil see appendix F)

3.6.2 The App

I prioritised prototyping a mobile app as this is an increasingly popular and convenient classroom delivery platform. The design criteria of usability, interactivity and appeal (discussed in the previous chapter) were applied to the app and other S*peak English* materials where appropriate. Furthermore, in addition to popularity and convenience, an app also has interactivity features to motivate learners in a hedonistic and utilitarian way (see section 2.6.3).

I created a *Speak English* app prototype of the *team build* phase and a large scale map projecting how the other five phases would be realised in app form.

Fig.32. App start page

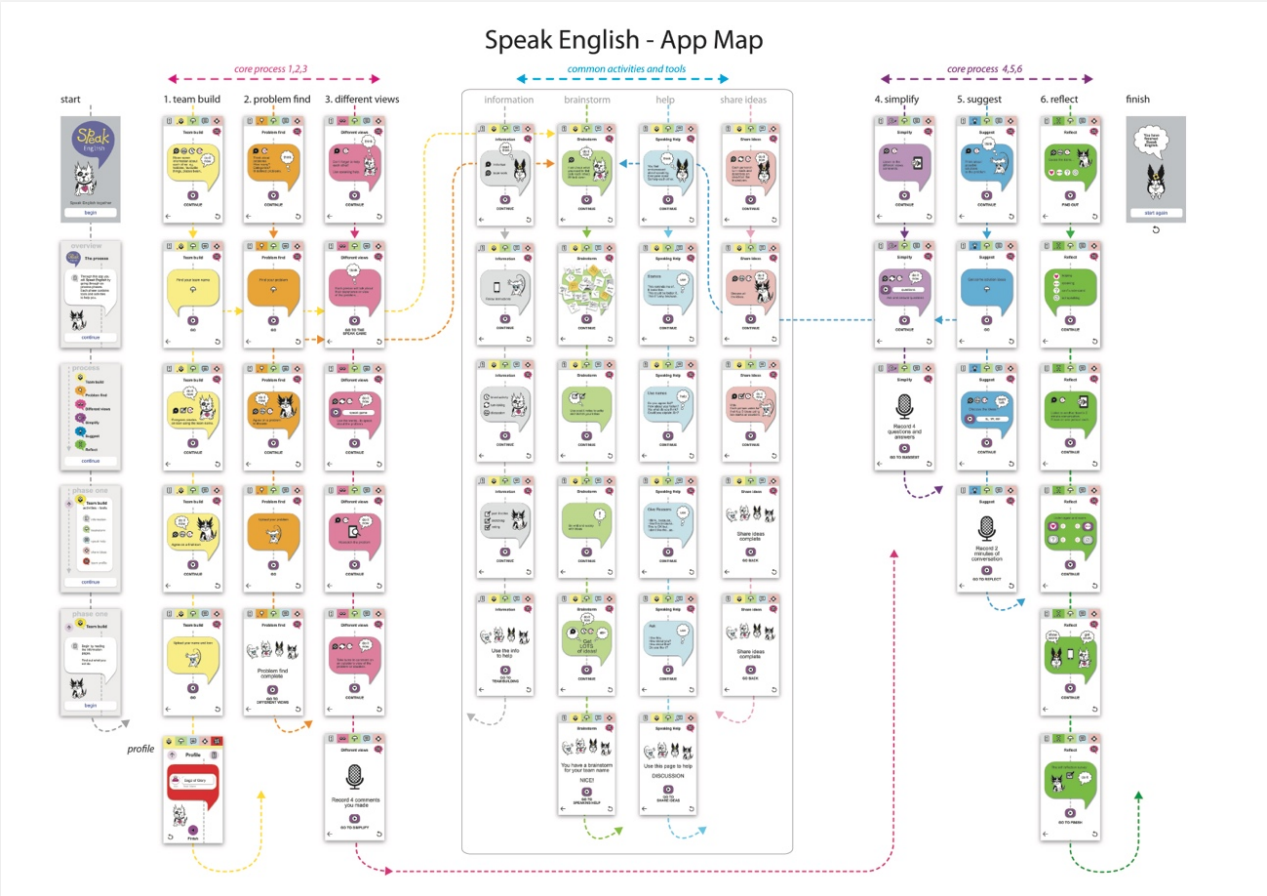

Fig.33. App map showing the six Speak English phases, common activities and tools and start and finish (see appendix G for details)

Following the start page, learners are shown an animation of the 'whole world' overview of the six phases of *Speak English* to contextualises the first *team build* phase. Learners are shown the six phases and their colours, and the activities and tools contained within the team build phase.

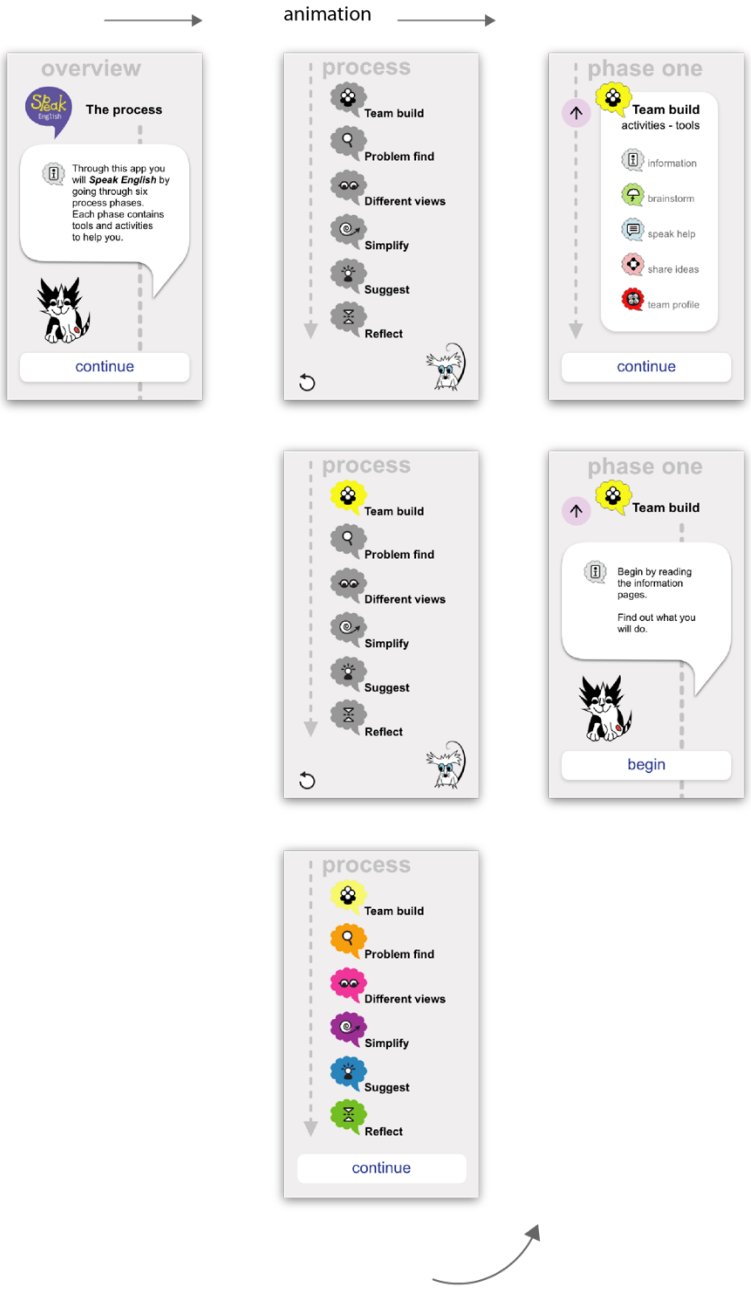

Fig.34.. The initial Speak English overview – six phases, activities and tools (team build phase)

Usability was identified as key to the effective delivery of *Speak English* via a mobile app. In instructional design terms, intuitive simplicity is essential for learners so they are able to understand what they are being asked to do (see Elias 112). Visual icons were used as much as

possible to quickly communicate what learners are expected to do. The size constraints of a mobile interface also demanded simple instructions and the use of visual symbols (icons) where possible. Clickable buttons were differentiated by using colour (purple), the more important buttons having a stronger colour.

Fig.35. Informational icon examples (3) and navigation button

The top navigation menu in the *team build* phase shows learners where they are (inside the *team build* phase) and enables them to access activities and tools that they will use here. Learners find out what informational icons mean in the information page. This is placed beneath the main menu for easy location as it may be necessary to refer to it at any time.

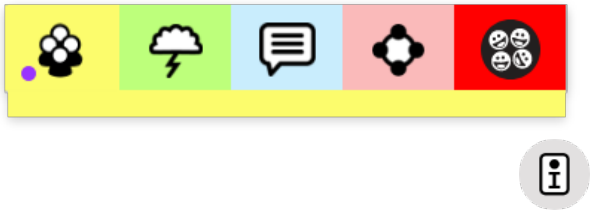

Fig.36. Top navigation

Through ongoing iterative development, I changed the bubble to a ‘squarer’ shape and brought the characters out of the bubble shape. This gives more space in the bubble box and a more contemporary look. To further establish the look and establish text hierarchy, I also simplified navigation buttons and changed the navigation text to lower case.

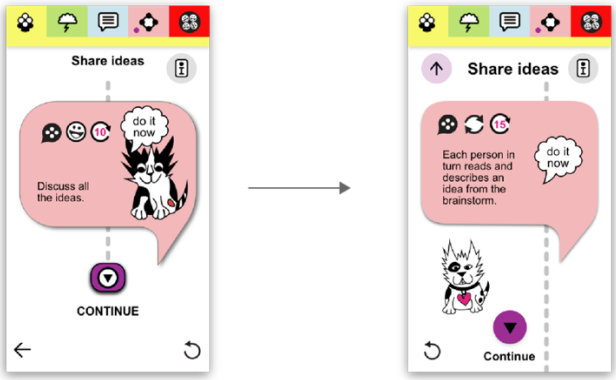

Fig.37. Changes to the final design: bubble shape, buttons, text heirarchy and characters

The objective was to allow learners to navigate through the process with minimal effort (following Krugg's "Don't make me think" idea) so they would be free *to* think during the learning activities (see section 2.6.2). In order to get learners to identify different steps within *team build*, a series of distinct scrolling boxes indicate either *real-life* tasks (to be done physically in the classroom) or *phone* tasks (to be done online via a smartphone). User testing of paper and digital prototypes revealed that this was an intuitive and effective way of communicating *what to do*. During the design stage itself, these boxes were replaced by speech bubbles which were more reflective of the *Speak English* theme. Further testing showed that using 'continue' buttons improved the scrolling system by guiding the user (learner) in a more controlled 'step by step' way so that they stayed on the relevant page (bubble) long enough to complete the activity before moving on.

The following figures illustrate my iterative developmental process, from paper prototyping to digital development, scrolling to 'step-by-step.'

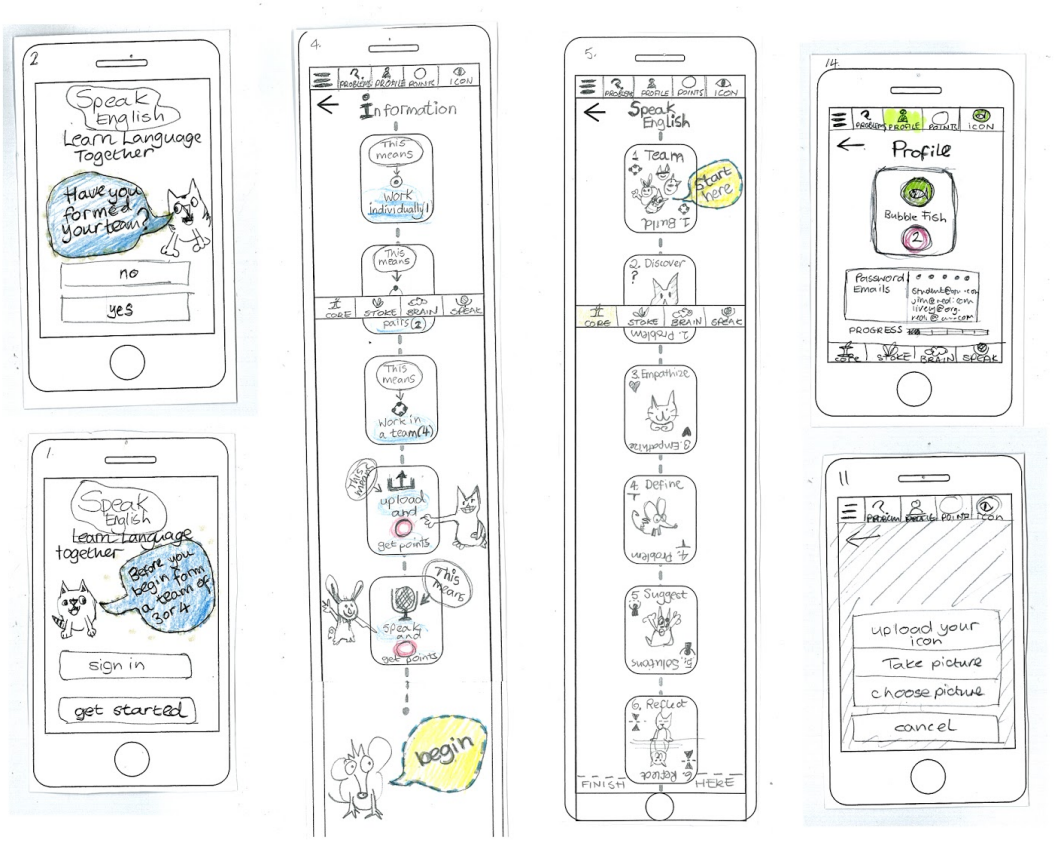

Fig.38. Paper prototyping

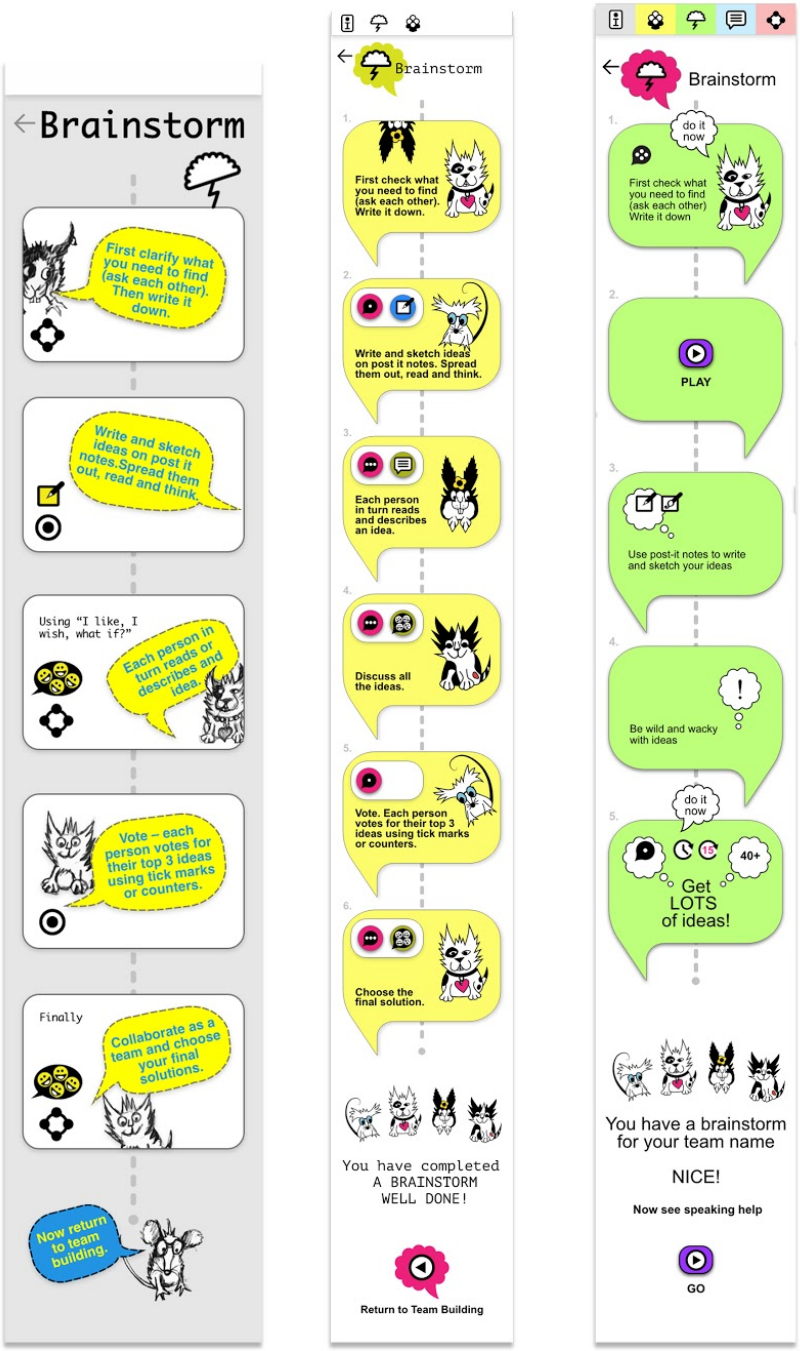

Fig.39. Iterative development

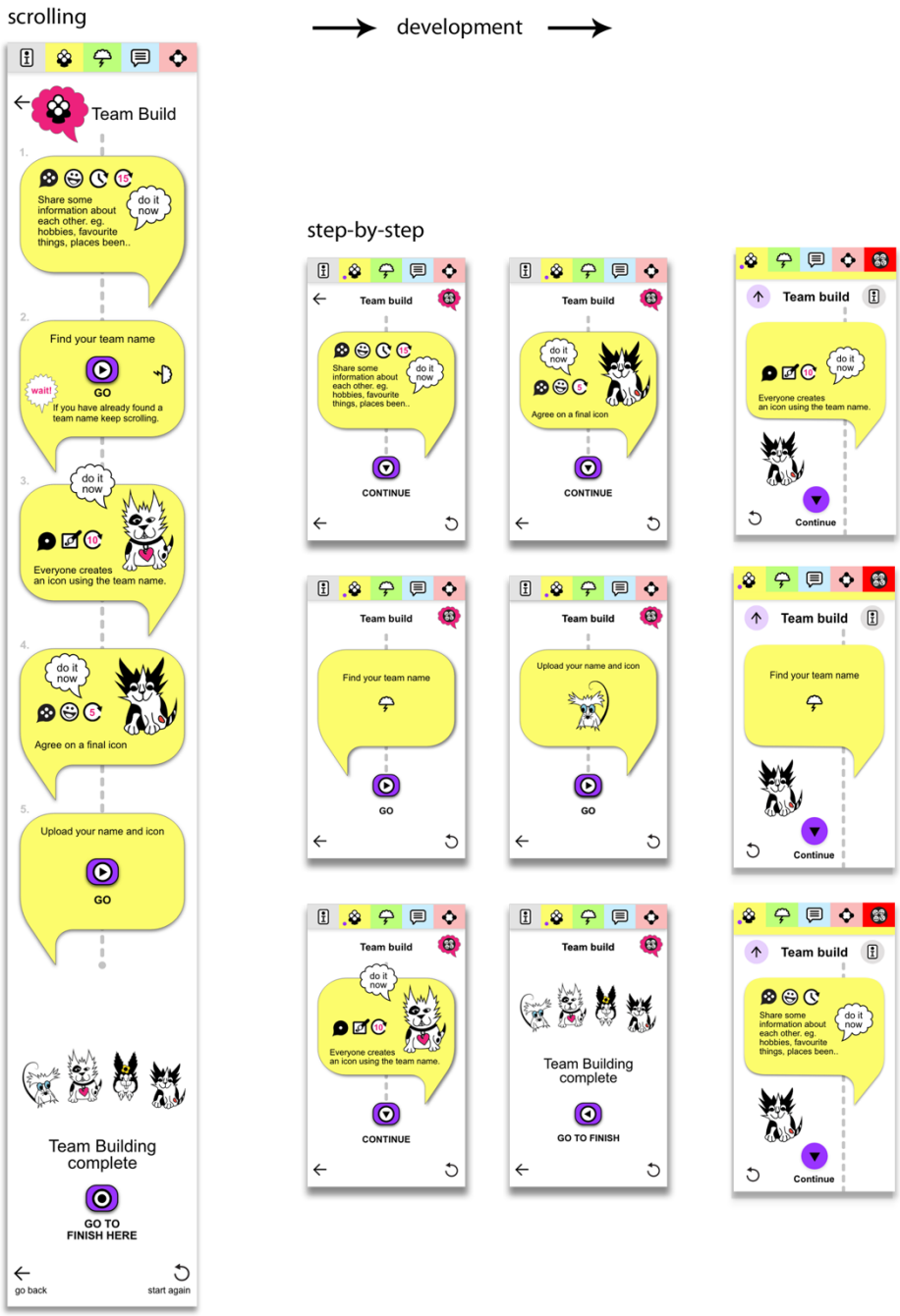

Fig.40. Development of scrolling page format to 'step by step' format

The speech bubble motif is used instructionally as the animal characters tell learners when they are expected to engage in individual reading and thinking activities, or team activities. User testing showed that this was easily understood and that the animal characters' demands added a humorous element to the instruction. (Humour is an important element in a learning experience and is especially valuable in a language learning context where a sense of fun and playfulness can enhance linguistic creativity (see section 2.6.1 and 2.6.3).) This also showed that the speech bubble instructional device was a useful and effective way of communicating *what to do*. The 'dot' on the top navigation menu also usefully indicates the current page.

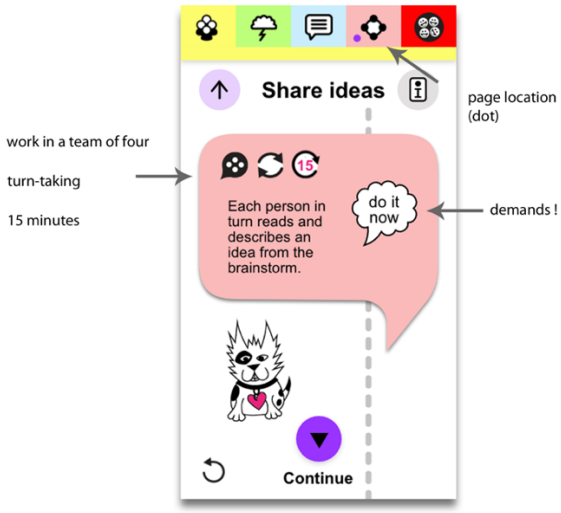

Fig.41. Speech bubble box example and information

As a result of user testing, a simple animation sequence was designed to visually communicate *what to do* for a brainstorm. This was intended to minimise on screen instruction and avoid excessive clicking. Nevertheless, as some additional instruction was deemed necessary, simple text and visual reminders were added to follow the brainstorm animation. In this simple and repetitive context, such 'doubling up' of visual information was unlikely to increase cognitive load (see section 2.6.2). The animation also added an appealing aspect to the instruction and was liked by users, thus mirroring research findings that likability can add a motivational aspect that encourages clicking behaviour (see Chih-yu Chin et al. 589; also section 2.6.3 above).

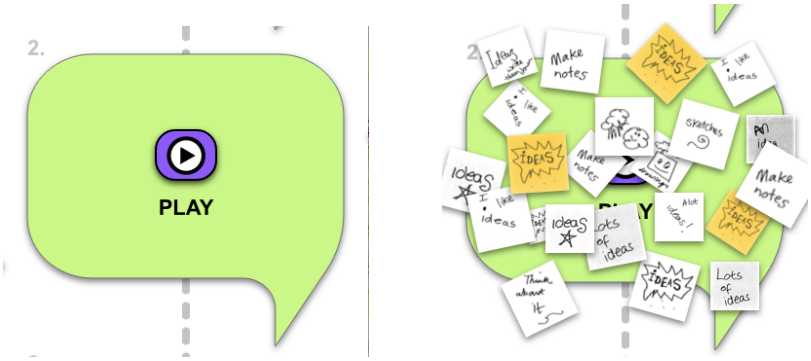

Fig.42. Brainstorm animation illustrations

As *Speak English* is intended to encourage face-to-face communication, the app has been designed to be used in a collective way to facilitate social collaboration. In this sense, the media is not the main motivational force but merely the means by which the learning process is driven. As the most important engagement factor in this learning system is face-to-face social interaction, the extent to which engagement is provided by the media is therefore deliberately limited. The app offers "mediated human communication" (Domagk et al. 1024-1025), with the motivational aspects of the app being used to facilitate real-life classroom activity. The simple app and interactivity within it are intended to provide a convenient and additional motivational aspect to the delivery of the learning process. Learners are encouraged to click and navigate to find out and see more by using the *Speak English* app in a similar way to their use of familiar systems such as Facebook where they click or scroll just for fun or to find information (see Chih-yu Chin et al. 581). A personal element is added as the team uploads their name and icon to a team profile page at the end of the team build phase.

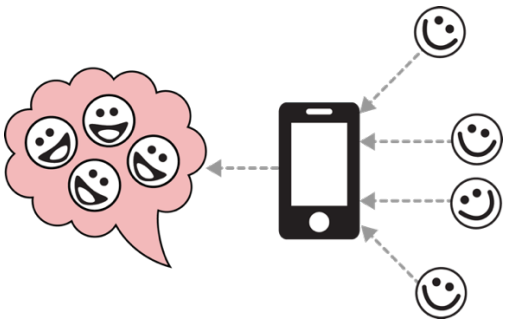

Fig.43. Mediated communication

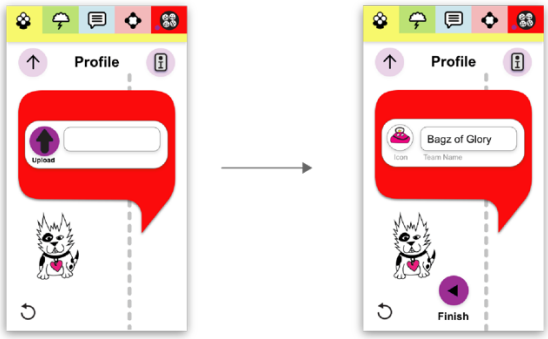

Fig.44. Upload to the team profile

3.6.3 Booklet and Worksheets

Booklets and worksheets offer a more traditional way of presenting *Speak English*. Examples of printed materials have been made to communicate how selected parts of the process work. These can be used by learners in the classroom or shown to tutors, educators or stakeholders before the system is used. The materials contain the same content as the app but have been modified to suit the printed format. As far as possible 'interactive' elements - in the form of tick boxes, written comments and simple 'games' were incorporated to increase learner engagement.

An additional fun element could be a *Where's Bagz?* activity in which learners find the 'bagz' icon and a letter on every page. When they have collected all the letters, teams could use them to work out as many correct English words as they can.

3.6.4 Animation and Posters

A short animation was also made to communicate the experience of *Speak English*. This is intended to bring the whole system to life and demonstrate how it will work in the classroom. The target audience for this media is primarily language school stakeholders, although the animation would also serve as a useful overview of the system for learners and tutors who would benefit from a clear audio visual representation of the process. The animation represents a learning team's journey through the system and clearly indicates what happens in each of the different phases. The *Speak English* process has been stripped down to bare essentials in order to maintain simplicity and clarity. A visual 'show not tell' method has been followed to keep the information a simple as possible.

Fig.45. The learning team

Finally, a series of three system ‘overview’ posters were created. Poster 1 is a simple overview of the whole process, poster 2 is a more comprehensive ‘tree’ diagram detailing the process, activities and beneficial learning elements, and poster 3 is a projection map illustrating how the six phases of *Speak English* could be fully realised in app form.

"It would be advisable for material developers and course books writers to integrate different types of activities for developing pragmatic competence with the content through awareness-raising activities and opportunities for communicative practice," (Aksoyalp and Toprak 131).

Conclusions

From personal experience teaching English here and abroad, I had found that many learners - despite years of English instruction - often had difficulty conversing and interacting in real-life language situations. At the same time, much of the teaching material supposedly designed to practice English conversation was restricted in scope, contrived and unrealistic. These anecdotal observations were the starting point for this project, in which I wished to design a language teaching system that would help learners improve their fluency and confidence in using English to communicate.

Having introduced my aims and objectives, the bulk of this exegesis covered the theoretical background (Chapter 2) and my practical response (Chapter 3) to the broad question, 'how can design thinking be used to create a language learning system aimed at improving English fluency?' Chapter 2, therefore, reviewed research literature on both design thinking in education and language learning. This confirmed both that design thinking principles are of clear benefit in broader educational settings and that such principles could usefully be employed in my chosen area - addressing the gap in language learners' communicative competence. Supported by this theory, Chapter 3 then outlined how and why I designed my *Speak English* system, including examples of the supporting materials (with more detailed examples provided in the appendices to follow). Throughout this discussion, I emphasise the guiding design thinking principles in my own design.

Speak English is an innovative cooperative language learning framework, drawing on design thinking and problem framing, that encourages learners to improve their English fluency in a classroom situation. By integrating design thinking into the system, I introduced a new approach that provides motivation through an authentic, learner-led, scaffolded and socially interactive process. Ideational and iterative elements of design thinking also contribute to the development of learners' language and thinking skills.

To present *Speak English* and bring it to life I also produced an animated overview of the process plus prototyped examples of learning materials. At each stage, design theory and practicality informed my design decisions. The objective was for the system and its materials to be usable, interactive and appealing. By going through a design thinking process in my own design - especially iterated prototyping - Speak English has already gone through several cycles of critical assessment ('design interrogation'). Examples are provided in Chapter 3 above and in the appendixes. Small scale, informal testing situations (with fellow postgraduate students) provided feedback about the appeal of the interface and ease of navigation, leading to further refinements in the system. Importantly, however, further classroom-based testing will be required to fully assess the extent to which learning objectives are met.

Another important consideration is that of the expectations and beliefs of the students at which *Speak English* is aimed. While research suggests that the collaborative, problem finding type exercises provided by my system will genuinely enhance language production and fluency, overcoming students' preconceptions - especially those based on long immersion in traditional rote-learning methodology - becomes an important challenge. (From my own experience as a teacher, I know that many learners are unfamiliar with the concept of learner-led or learner-centred activities.) Initially at least, *Speak English* should be used as a supplementary add-on to normal classroom activities, with plenty of guidance and reassurance from teachers. Ideally the phases of *Speak English* should be presented in different ways to engage learners in the novelty of using varied media and thereby increase learner enjoyment and motivation to participate.

Although still a prototype, *Speak English* offer an original addition/alternative to existing language learning materials, one that is a practical, useful and usable method of implementing a cooperative language learning strategy in the classroom. The system is a good way of supplementing and adding to existing methods to provide valuable 'real' conversation exercises in class. The app is a crucial element, as this means the system can be easily and cost-effectively delivered to small or large groups, as well as providing a way to motivate learners to engage with the learning materials. Furthermore, the *Speak English* system as it stands provides an initial concept upon which future research and design may be based. It introduces the potential of using a design thinking approach in language education and in this way the project is an initial contribution to the development of innovative cooperative language learning strategies.

While further refinement and classroom-based testing is necessary, the design already offers a useful resource that can help deliver cooperative language learning and improve learners' fluency. My contribution also suggests that design thinking can be used to positively enhance English language learning experiences. As emphasised in the introduction, there are more than a billion people in the world who want to improve their English competence – my *Speak English* system and app, therefore, has a huge potential market.

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List of Appendix

1.Objective: Team Build (ideate) **CORE** A team of 3 to 4 people – working on 4 problems then reform teams	**2.Objective: Discover Problem (ideate)** **CORE** Choose a problem	**3.Objective: Empathize (speak)** **CORE** Understand how it feels to have this problem.	***Objectives:* ideate/discuss** **REPEATED ACTIVITY**
Time Limit ** minutes	**Time Limit ** minutes**	**Time Limit ** minutes**	***Time Limit 30 minutes***
Tips on team building • Groups of 4 are best • Mix ages, genders, nationalities and interests as much as possible • You should feel comfortable with your team **Get to know your team** • Discover something new about each team member • Do a **stoke exercise** Use **ideate/discuss** to decide on your team name and create a team icon *Problem = team name and icon* Upload your team name & icon to your **team profile** Faqs Who chooses the teams?	**Tips on problem finding** • It can be anything that makes your life difficult, annoys or bothers you • It can be trivial or serious • It must be difficult to solve and have no easy or obvious answer • Research to get background information about your chosen problem **Find a problem** Choose a problem from the **problems page** **or** use **ideate/discuss** to find your own problem. *Problem = find a problem* Upload the problem to your **team profile** Faqs How much research?	**Tips for empathy** • Understand and share the feelings of another or "to stand in someone else's shoes" • Do not confuse empathy with sympathy which is to feel sorry for someone. **Describe experiences** Use **Speak** **Describe feelings and what you said** Use **ideate/discuss** *Problem = your chosen problem* •	*Write and place the problem in view* ***Speak (record audio 1)*** *Each person speaks communicating their ideas about or experiences of the problem* ***Ideate - Brainstorm*** • *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* • *Spread the notes out, read and think about all the ideas* ***Discuss*** ***IL IW WI (record audio 2)** - Each person in turn reads or describes an idea and comments using "I like, I wish, What if?"* ***Vote** – each person votes for their top 3 ideas using tick marks or counters.* ***Choose (record audio 3)*** *By discussion the group chooses the best 3 ideas.* ***Report** to the class. (optional)* ***Upload** your team's 3 audio recordings to your team profile* *FAQs* *Tip for making audio recordings?* *How to use audio recordings for assessment?*

4.Objective: Define the problem What is the problem ? Pin down the problem but do not try and fix it yet	**5.Objective: Suggest solutions** Offer as many problem solutions as possible no matter how impractical they may seem	**6.Objective: Reflect** Evaluate	***Objectives:* ideate/discuss** **REPEATED ACTIVITY**
Time Limit ** minutes	**Time Limit ** minutes**	**Time Limit %% minutes**	***Time Limit 30 minutes***
Assess what you know • Who is affected ? • What is the problem ? • When does it happen ? • Where does it happen ? • Why does it happen ? • How does the person feel ? **Use <u>Ideation and conversation</u>** • Collect words, phrases and sketches about the above **Individually write about these scenarios** • In an ideal world • In reality • If the problem is not fixed **And write a problem definition** • Who • What • When • Where • Why • How (do they feel)n **As a team choose the best definition**	**Use these phrases to help** • what if we … • we could … • how about … **Use <u>Ideation and conversation</u>** • Collect words, phrases and sketches about the above **As a team choose the top 3 solutions**	**How did we do ?** • Choose a person from your team or another team • Listen to an audio recording that they are in • Note their performance successes and areas for improvement **Use <u>Ideation and conversation</u>** • Your problem title is "performance" • Your task is to collect words, phrases and sketches on your performance and those you have noted for someone else **As a team choose the top 3 successes and the top 3 areas to work on**	*Write and place the problem in view* ***Speak (record audio 1)*** *Each person speaks communicating their ideas about or experiences of the problem* ***Ideate - Brainstorm*** • *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* • *Spread the notes out, read and think about all the ideas* ***Discuss*** ***IL IW WI (record audio 2)*** *- Each person in turn reads or describes an idea and comments using "I like, I wish, What if?"* ***Vote*** *– each person votes for their top 3 ideas using tick marks or counters.* ***Choose (record audio 3)*** *By discussion the group chooses the best 3 ideas.* ***Report*** *to the class. (optional)* ***Upload*** *your team's 3 audio recordings to your team profile* *FAQs* *Tip for making audio recordings?* *How to use audio recordings for assessment?*

What to do outline example 2_

Objectives:* get team name + icon** ***IDEATE (BRAINSTORM)	***Objectives:* get problem** ***IDEATE (BRAINSTORM)***	***Objective:* empathize** ***SPEAK***	***Objective:* define problem** ***CONSOLIDATE***	***Objective:* suggest solutions** ***IDEATE + DISCUSS***	***Objective:* reflect** ***LISTEN + EVALUATE***
Time Limit 30 minutes	***Time Limit 20 minutes***	***Time Limit 20 minutes***	***Time Limit minutes***	***Time Limit 30 minutes***	***Time Limit 30 minutes***
Individually write and sketch name and ideas on post it notes. (Be wacky and wild with your ideas.) *Spread the notes out, read and think about all the ideas* ***Vote** – each person votes for their top 3 names and top 3 icons using tick marks or counters.* *Collaborate - As a team choose your final solutions*	*Use the problems page or find your own problem* *Individually write and sketch problem ideas on post it notes. (Be wacky and wild with your ideas.)* *Spread the notes out, read and think about all the ideas* ***Vote** – each person votes for their top 3 ideas using tick marks or counters.* *Collaborate - As a team choose the problem* *Research your chosen problem*	*Write and place the problem in view* *Each person speaks communicating their ideas about or experiences of the problem.* *Include:* *when, where, who, what, what, why* *your feelings* *what you or others said/say*	*Write and place the problem in view* *Individually write and sketch what your team said on post it notes.* ***Categorize** - Spread the notes out, read and as a group place them into their categories (when, where, who, what, what, why)*	*Write and place the problem in view* *Individually write and sketch solution ideas on post it notes. (Be wacky and wild with your ideas)* *Spread the notes out, read and think about all the solutions* ***IL IW WI** - Each person in turn reads or describes an idea and comments using* *"I like, I think, What if?"* ***Collaborate and discuss*** *The group chooses the best solution using conversation.* *Use names and helping language* *How about you Yukellen?* *Sam, what do you think?* *Do you agree Young?* *Record and upload your group's audio*	Choose a person from your team or another team Listen to the audio recording that they are in Note their performance successes and areas for improvement *With your group:* *Individually write what you noted on post it notes* *Spread the notes out, read and think about what others noticed* *Categorize - place the notes into categories* ***Discuss** what your strengths and improvement areas are.*

What to do outline example 3_

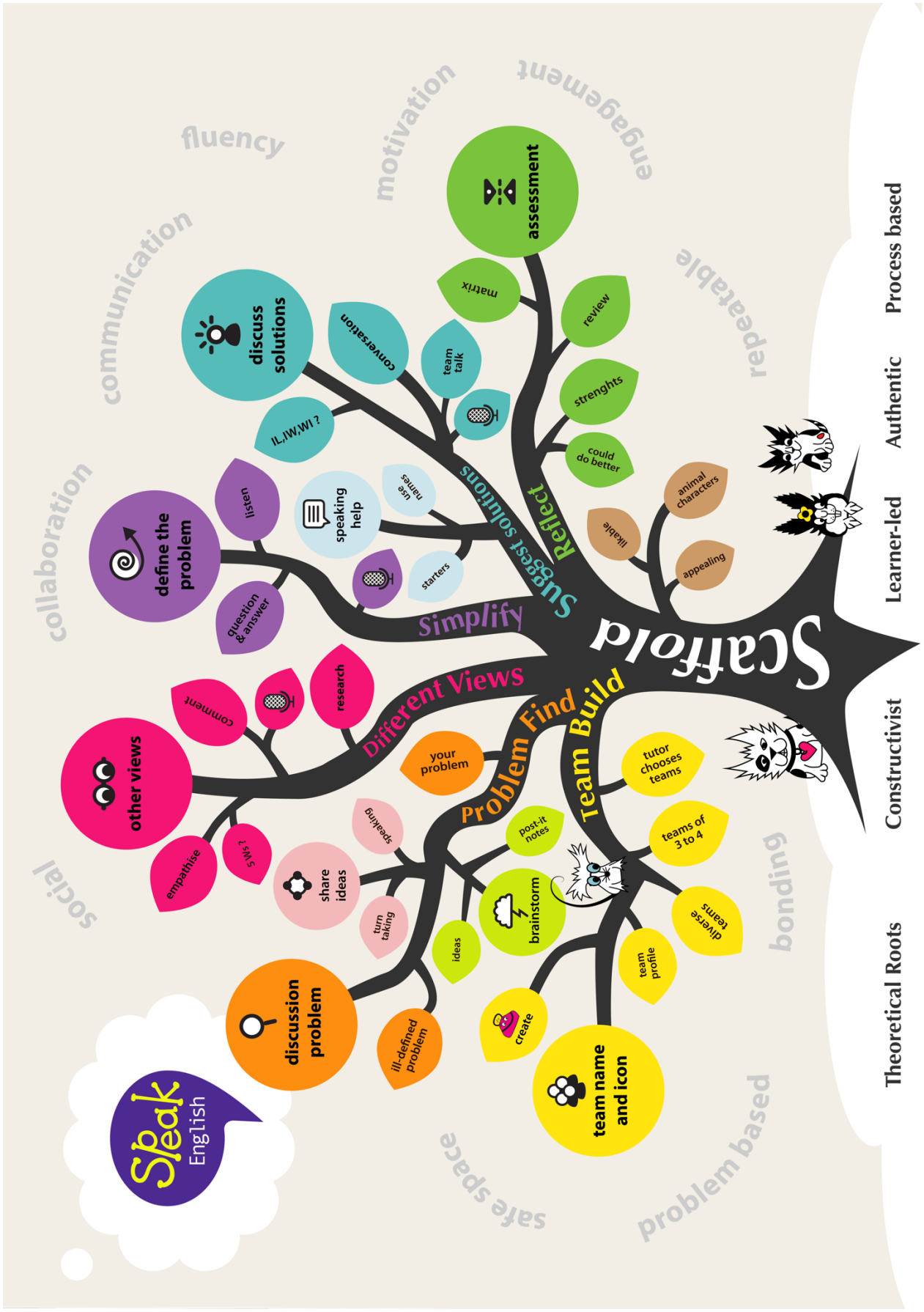
TEAM BUILD	*PROBLEM DISCOVER* *problem scenario present* Empathize/Observe	*EMPATHSIZE* *Independent inquiry* Empathize/Understand	*CONSOLIDATE* *Prob.definition/reformulation* Define/POV	*SUGGEST* *Conclusion/Synthesis* Ideate [prototype/test]	*REFLECT* *Self-reflection/abstraction*
Time Limit 30 minutes	***Time Limit 30 minutes***	***Time Limit 30 minute***	***Time Limit 30 minutes***	***Time Limit 30 minutes***	***Time Limit 30 minutes***
3 to 4 per team *(NOTE & VOTE) BRAINSTORM* *Write and place the problem in view.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* *Spread the notes out, read and think about all the ideas.* *Each person in turn reads or describes an idea and comments using language help.* ***Vote** – each person votes for their top 3 ideas using tick marks or counters.* *(TEAM TALK 1)* *Collaborate - As a team and choose your final solutions* *Research icon* *Upload you name and icon*	*Use the problems page or find your own problem.* *(NOTE & VOTE) BRAINSTORM* *Write and place the problem in view.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* *Spread the notes out, read and think about all the ideas.* *Each person in turn reads or describes an idea and comments using language help.* ***Vote** – each person votes for their top 3 ideas using tick marks or counters.* *(TEAM TALK 1)* *Collaborate - As a team and choose your final problem* *Research your chosen problem* *Record* *Dictate 2 versions of your problem (the same problem phrased differently).*	*Write and place the problem in view.* *(TEAM TALK 2)* *Each person speaks communicating their ideas about or experiences of the problem.* *Include:* *when, where, who, what, what, why, your feelings and what you said/say* *In turn recap what each person said and clarify (choose on person each)* *J said …* ***A new perspective*** *In turn comment on **another (an outside person)** person's view of each situation.* *Their feelings what they felt and said/say* *Record empathy comments* *Dictate 4 comments one from each person.*	*Write and place the problem in view.* *Listen to the empathy comments.* *(TEAM TALK 3)* *Take turns to ask and answer these questions:* *Use names:* *Rainbow, explain who you think has the problem?* *Jed, what is the problem from your viewpoint?* *Mina, what would be the ideal situation?* *Olly, what are the wider issues of this problem?* *Record 4 questions and answers.*	*Think of solutions* *(NOTE & VOTE) BRAINSTORM* *Write and place the problem in view.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* *Spread the notes out, read and think about all the ideas.* *Each person in turn reads or describes an idea and comments using language help.* ***Vote** – each person votes for their top 3 ideas using tick marks or counters.* *(TEAM TALK 4)* ***IL IW WI** - Each person in turn reads or describes a solution idea and comments using:* *"I like this because* *I think* *What if?"* *Record 4 comments* .	Listen to the consolidation and solution recordings. *(TEAM TALK 5)* *Practice and prepare a conversation based on your problem process.* *You and your team decide what to talk about.* Record 3 minutes of conversation for self-reflection, peer or tutor assessment. Using the **review box** tick performance successes and areas for improvement for one participant. ***Review Box :*** ***tick when you hear:*** • *Asking realistic questions* • *Helping language* • *Clear language* • *Interesting comments* • *Thoughtful comments* • *Giving reasons for preferences* • *Pausing or hesitating* • *Language you cannot understand*

What to do outline example 4_final

TEAM BUILD *Get team name + icon*	*PROBLEM FIND* find-problem	*DIFFERENT VIEWS* See a new perspective	*SIMPLIFY* Frame the problem	*SUGGEST* Discuss solutions +opinions.	*REFLECT* Asses how we did
Time 60 minutes	***Time 50 minutes***	***Time 60 minutes***	***Time 40 minutes***	***Time 40-60 minutes***	***Time 20-40 minutes***
Tutor organises teams of 3-4 *With tutor guidance share info. about each other* **15 mins** *Brainstorm* *Write down what you need to find out.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* **15 mins** *Share Ideas* *Spread the notes out, read and think about all the ideas.* ***Read language help.*** *Each person in turn reads or describes an idea and comments* ***Vote** – each person votes for their top 3 ideas using tick marks or counters calculate a winner.* **15 mins** *Each person sketches a version of the chosen icon. Choose a final version together.* *Upload your chosen name and icon* **15 m**	*Tutor helps think about problems.* *How many? Categories?* *Ill-defined.* **15 mins** *Brainstorm* *Write down what you need to find out.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* **15 mins** *Share Ideas* *Spread the notes out, read and think about all the ideas.* ***Read language help..*** *Each person in turn reads or describes an idea and comments* ***Vote** – each person votes for their top 3 ideas using tick marks or counters calculate a winner.* **15 mins** *Record* *Dictate 2 versions of your problem (the same problem phrased differently).* **5 mins**	*Tutor helps think about helping each other,* *Write and place the problem in view.* **10 mins** *(TEAM TALK 1)* ***Use language help*** *Each person speaks communicating their ideas about or experiences of the problem.* *Include:* *when, where, who, what, what, why, your feelings and what you said/say* *In turn recap what each person said and clarify (choose one person each)* *J said …* **15 mins** *Research your chosen problem using the internet.* **15 mins** ***A new perspective (empathy comments)*** *In turn comment on **another (an outside person)** person's view of each situation.* *Their feelings what they felt and said/say* **10 mins** *Record empathy comments* *Dictate 4 comments one from each person.* **10 min**	*Write and place the chosen problem in view.* *Listen to the empathy comments* *Tutor helps with question forming.* **15 mins** *(TEAM TALK 2)* ***Use language help.*** *Take turns to ask and answer questions about:* *Use names:* *Who has the problem. (issue)* *What an ideal situation would be. (vision)* *Wider issues related to the problem. (issue)* *How we could make things better. (method)* **10 mins** *Record 4 questions and answers.* **15 mins**	*Think about possible solutions to the problem* **5 mins** *Brainstorm* *Write down what you need to find out.* *Individually write and sketch ideas on post it notes. (Be wacky and wild with your ideas.)* **15 mins** *(TEAM TALK 3)* ***Use language help.*** ***IL IW WI** – The team discusses their solution ideas and their experiences of the process using:* *"I like* *I think* *What if?"* **20 mins** Record 3 minutes of conversation for peer or tutor review or assessment. It can be authentic or rehearsed. . **0-20 mins**	Listen to the consolidation conversation recordings. **5 mins** Listen again (more times and with help if needed) and complete the **review box** tick for one participant from a different team. **5-20 mins** ***Review Box :*** ***tick when you hear:*** • *Describing ideas* • *Giving reasons for preferences* • *Helping each other (questions/names)* • *Clear language* • *Pausing or hesitating* • *Language you cannot understand* *Return your comments to the participant.* *Complete the self-reflection part to assess your strengths ans areas for improvement.* **10 mins**

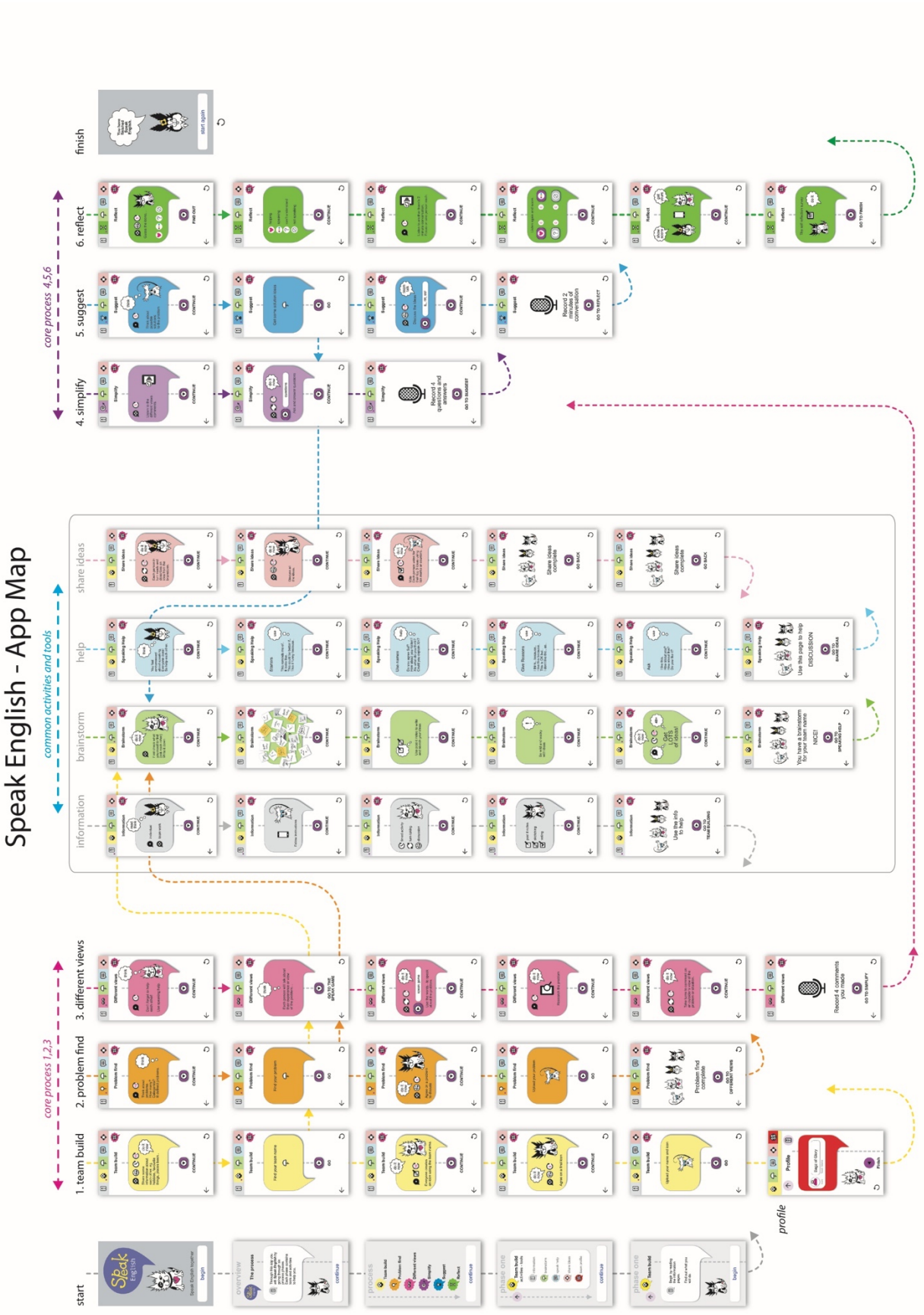
green=brainstorm **Pink=share ideas** **yellow=team talk** **blue=other activity.** ***language help.***

Appendix E. Speak English Tree Diagram



Appendix F. Character development

Appendix G. Speak English app map



Appendix H. Ethics Information Sheet

MASSEY UNIVERSITY
COLLEGE OF CREATIVE ARTS
TOI RAUWHĀRANGI

Speak English: A Communicative Language Learning System

INFORMATION SHEET

Researcher Introduction

Researcher: Sue Ollerenshaw
Type and purpose of the project:
"Speak English" is a classroom-based language learning system that aims to improve fluency in second language English learners.

This research is a student project, carried out as part of the Degree of Master of Design at Massey University, Wellington.

Project Description and Invitation

The system *Speak English* aims to improve English language fluency by increasing learner motivation and engagement and providing opportunities in which learners are able to broaden their second language English use. The learning system is designed to be used in a "live" classroom where educators and learners interact face to face and progress along the Speak English learning journey together. A range of instructional materials and a leaning app covering part of the Speak English process are being created to illustrate how the Speak English learning journey may be supported and scaffolded.

The aim of the test is firstly to see if participants are able to understand and interpret the informational design of the app and secondly to receive feedback on their experience. Tests will include a post activity questionnaire focusing on information design, icon design and user experience. The questionnaire sheet is attached to this application. Prototypes will be tested either with small groups of participants or individuals.

You are invited to participate in the testing research outlined above on a voluntary basis.

Participant Identification and Recruitment

Participants will be recruited informally on a voluntary basis.
No more than 6 volunteers will be recruited as this will be enough to highlight any problems in understanding what the mobile app is asking them to do.

Project Procedures

Participants will be involved in reading instructions and interacting (pressing buttons or icons) with the mobile app. This will take no longer than 20 minutes.

Data Management

Data will be used to report on the effectiveness of and necessary changes to the app in my Master of Design exegesis. When data is obtained it will be safely transported (if necessary) and stored at Massey University. The data will be disposed by shredding of at the end of my Master of Design.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question (completion and return of the questionnaire implies consent);
- withdraw from the study at any point during participation;
- ask any questions about the study at any time during participation;
- be given access to a summary of the project findings when it is concluded.

Project Contacts

Researcher: Sue Ollerenshaw: [redacted]
Supervisor: Dr. Jacqueline Naismith: J.J.Naismith@massey.ac.nz

If you have any questions about this project, please contact the researcher or supervisor.

LOW RISK NOTIFICATIONS

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz".

Appendix I. Ethics Consent

MASSEY UNIVERSITY
COLLEGE OF CREATIVE ARTS
TOI RAUWHĀRANGI

Speak English: A Communicative Language Learning System

PARTICIPANT CONSENT FORM - INDIVIDUAL

I have read, or have had read to me in my first language, and I understand the Information Sheet attached as Appendix I. I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study at any time.

I agree to participate in this study under the conditions set out in the Information Sheet.

Declaration by Participant:

I _____ [print full name] hereby consent to take part in this study.

Signature: _____ Date: _____