

# **Exploring the dynamic relationship between Dr. GEPT feedback and learners' L2 motivation**

Fumiyo Nakatsuhara, Daniel M. K. Lam, Johnathan Jones,  
Sathena Chan, Sean Chen & Rachel Wu

Submitted in March 2023

## Table of contents

1. Introduction
  2. Research background
    - 2.1 The research context
    - 2.2 Literature review
      - 2.2.1 Feedback and its role in the current study
      - 2.2.2 Learner motivation as a potential factor in feedback engagement
      - 2.2.3 Motivation studies on Taiwanese L2 English learners
  3. Research questions
  4. Research design and methods
    - 4.1 Participants
    - 4.2 Data collection and analysis
      - 4.2.1 Phase 1
      - 4.2.2 Phase 2
  5. Results
    - 5.1. Phase 1 survey
      - 5.1.1. Learners' English test-taking and learning information
      - 5.1.2. Learners' L2 motivation profile and feedback perceptions
    - 5.2. Phase 2 learning logs and interviews
  6. Discussion & conclusions
    - 6.1 Summary and discussion of main findings
    - 6.2 Implications of the study and recommendations
      - 6.2.1 Implications for Dr. GEPT
      - 6.2.2 Recommendations for Dr. GEPT's further development
      - 6.2.3 Contribution to research
      - 6.2.4 Limitations and future research
  7. References
- Appendix A: Comparison of geographic locations between survey respondents and GEPT intermediate level test-takers (2022)
- Appendix B: English Language Learning Questionnaire (Translated in Mandarin Chinese)
- Appendix C: Learning log 1 (Translated in Mandarin Chinese)
- Appendix D: Learning log 2-9 template (Translated in Mandarin Chinese)
- Appendix E: Interview questions & guidelines
- Appendix F: Coding schemes for learning log and interview data
- Appendix G: Confirmatory factor analysis

### **Funding & Acknowledgements**

We would like to express our gratitude to the Language Training and Testing Center (LTTC) for funding this research project. We are also grateful to Dr Angela Gayton for reviewing earlier versions of this report and giving us valuable comments. We are also grateful to Dr Sanaz Vatankhah and Prof Yasuyo Sawaki for their generous advice on SEM at different stages of the project. However, all errors and oversights are our own.

## Abstract

Feedback is an important means to bridge assessment and learning, but its usefulness ultimately depends on whether and how learners engage with and act on the feedback. Learners' L2 learning motivation may interact with feedback in meaningful and consequential ways, yet there is relatively little research to date that explores such a dynamic relationship, particularly among language learners in secondary education.

This study aimed to fill this gap by exploring the relationship between learners' motivation and assessment feedback offered by Dr. GEPT – automated personalised feedback provided to GEPT each test-taker alongside their test scores, including an analysis of their strengths and weaknesses, learning advice, and vocabulary and sentence patterns for further study. Taking a mixed-methods approach, Phase 1 of this study involved a large-scale questionnaire survey (n = 635) to explore L2 motivation among senior high school learners of English in Taiwan and their general perceptions towards assessment feedback. The questionnaire was developed based on the *L2 Motivational Self System* model (Dörnyei, 2005, 2009). Phase 2 used learning logs (n = 14) and interviews (n = 10) for an in-depth qualitative inquiry into how learners engaged with Dr. GEPT feedback and how the feedback might have shaped the developments in learners' learning journeys. The report concludes with a discussion of how Dr. GEPT helps learners develop a positive orientation towards assessments and cultivates learner autonomy, as well as making some suggestions for enhancing the effectiveness of Dr. GEPT feedback.

## 1. Introduction

The launch of Dr. GEPT in 2021 marked the milestone of GEPT being the first large-scale English language proficiency test worldwide to offer personalized feedback to test-takers. The feedback offered by Dr. GEPT provides learners/test-takers with diagnostic information – their achievement level of each can-do statement, analysis of strengths and weaknesses, as well as guidance for further learning – key vocabulary and sentence structures and learning resources. Such feedback demonstrates several features of useful feedback within a learning-oriented assessment (LOA) perspective, and the user survey conducted by LTTC found positive perceptions of Dr. GEPT among learners, teachers and parents (Wu, 2021).

Recent LOA and the wider educational literature on feedback (e.g. Carless & Boud, 2018; Lam, 2021) highlights that the usefulness of feedback ultimately rests on whether and how learners *engage* with feedback – how they affectively react to feedback, and how they act on the comments and suggestions provided to them. Learners' L2 motivation is likely to interact with feedback and feedback engagement in dynamic ways. However, within the fields of LOA and language assessment in general, there is relatively little research on the relationship between assessment feedback and motivation (Turner & Purpura, 2016). The launch of the Dr. GEPT personalised feedback service presents an ideal opportunity for an empirical investigation to bridge this gap. Furthermore, by targeting Taiwanese senior high school students, this study addresses a limitation highlighted by Boo et al. (2015) that most motivation studies have been conducted with tertiary students, while students enrolled in compulsory education constitute the largest group of language learners.

The specific objectives of the study are:

- To obtain an overview of English learning motivation among senior high school students studying for GEPT in Taiwan
- To understand whether/how their English learning motivation and perceptions towards assessment feedback interact
- To understand how these learners engage with Dr. GEPT feedback
- To explore how Dr. GEPT feedback may shape the learners' learning journeys over time

Through understanding learners' motivations and engagement with feedback, this study aims to provide insights into the ways in which we can strengthen the pathway to achieving LTTC's goals of increasing GEPT test-takers' learning orientation (cf. test orientation) and cultivating learner autonomy.

## 2. Research background

This section explains the context for this research and provides a brief review of relevant literature, providing rationale for the subsequent research questions.

## 2.1 The research context

The General English Proficiency Test (GEPT) is a level-based criterion-referenced EFL testing system tailored to learners of English in Taiwan. Each GEPT level is targeted at learners whose English proficiency level corresponds to that expected at a specific major educational stage in Taiwan. The GEPT Elementary Level is intended to provide an attainable target for students in lower secondary education (typically aged 12 to 15), the Intermediate Level for students in upper secondary education (aged 15 to 18), the High-Intermediate Level for tertiary level students who major in subjects other than English, and the Advanced and Superior Levels for those tertiary level students who major in English in Taiwan. The GEPT level framework has been linked with the *Common European Framework of Reference for Languages: Learning, teaching, assessment* (CEFR, Council of Europe, 2001). The Elementary, Intermediate, High-Intermediate, and Advanced Levels of the GEPT tests largely corresponded to CEFR levels A2, B1, B2, and C1, respectively (Brunfaut & Harding, 2014; Fan et al., 2021; Green & Inoue, 2017; Knoch & Frost, 2016; Wu & Wu, 2010; Wu, 2014). The GEPT has received extensive recognition both domestically and internationally and is now the most widely taken English proficiency examination in Taiwan. As of December 2022, the test has served over 9 million English language learners at all levels in Taiwan.

Taiwanese high school students typically take the GEPT at the Intermediate (B1) or High-Intermediate (B2) level, depending on their English language proficiency. GEPT scores are used to assess their English language proficiency and identify areas where they need to focus their English language learning efforts. The scores are an important factor for high school students in Taiwan as they can impact their graduation, college admission, and scholarship opportunities.

In line with the core competency of 'learner autonomy' as defined in Taiwan's new curriculum implemented in 2019 for the 12-year basic education, the LTTC introduced a new score reporting service, Dr. GEPT (see Figure 1. Dr. GEPT landing page), as part of the new GEPT launched in January 2021. In addition to scores that provide a snapshot of their current proficiency level based on the test performance (see Figure 2), Dr. GEPT provides each test-taker with individualized diagnostic feedback that not only identifies strengths and weaknesses but also provides feedforward that offers guidance on how to improve their English skills. The feedback and feedforward include a test-taker's achievement level for each can-do statement (see Figure 3), key vocabulary and sentence patterns he or she may not have fully mastered (see Figure 4), and suggested learning resources and strategies. The purpose is to make test scores more transparent and to support learners in bridging the gap between their current performance and their subsequent learning objectives.

Figure 1: Dr. GEPT landing page



Figure 2: Sample GEPT test-taker score report web page

The screenshot shows a sample score report for a user named 王亦安 (Wang Yihan). The page features a navigation bar with the GEPT logo and '聽診室' (Dr. GEPT) branding. The main content area displays the user's scores: Listening (聽力) at 110 and Reading (閱讀) at 80. A message states: '王亦安 同學，您本次GEPT測驗成績為：' (Hello Wang Yihan, your GEPT test score is:). Below the scores, there is a red box indicating '中級聽讀測驗通過' (Listening & Reading at Intermediate Level: Pass). To the right, there is a section for 'Test Scores' with a robot icon and a message: '請詳閱強弱項分析和學習指引，以進一步了解您的英語能力和下一階段的學習方向。' (Please read the 'Analysis of Strengths & Weaknesses' and 'Advice for Improvement' sections to learn more about your English ability and for advice on further learning.)

Figure 3: Sample analysis report of strengths and weaknesses



Figure 4: Individualized feedback on words and sentence patterns that the test-taker may not have fully mastered based on his or her test performance

**字彙與句型**  
重點彙整  
Vocabulary & Sentence Patterns

王亦安 同學，  
根據您本次的表現，我們從試題整理了您可能尚未掌握的字彙與句型，建議您進一步瞭解並實際練習運用。

Based on your responses to the questions, we make lists of words and sentence patterns that you may not have fully mastered yet, and recommend you study them and practice using them.

**重點字彙 Key Vocabulary**

主詞 + 動詞 + the same + 名詞 + as + 比較的對象

說明：  
the same後面可以加上修飾的名詞，而介係詞as接上比較的對象。意思是，主詞和比較的對象就某個標準而言是一樣的

例：  
Mark is about the same age as my brother. Mark和我弟弟年紀差不多。本句中，Mark為主詞，比較對象是my brother，二者就年紀而言是一樣的。

說明：以滑鼠點擊各字彙，以聆聽發音、閱讀釋義和例句

## 2.2 Literature review

This study is informed by Learning-Oriented Assessment (LOA). Recent years have seen growing attention among language assessment researchers and practitioners toward LOA (Carless, 2015; Gebril, 2021; Turner & Purpura, 2016). As articulated by Jones and Saville (2016), the purpose of assessment in LOA is not only to measure knowledge, but to interpret and promote learning. Within this LOA lens,



formal assessments (in conjunction with informal assessments and classroom teaching) are used to foster the learning process, providing evidence of and for learning. To stimulate learning, assessment is paired with feedback. In most large-scale language assessments, feedback plays a relatively minor role, one which has limited diagnostic and formative potential (Green, 2021). However, feedback is a core feature of LOA (Lam, 2021). As Dr. GEPT contains learner-specific feedback rather than simply outcome feedback, it is adroitly positioned to explore effects of assessment feedback on learner performance.

### **2.2.1 Feedback and its role in the current study**

Feedback is a tool that helps guide the learner from their present performance to their desired future performance (Lam, 2021). Feedback has the potential to encourage learners to reflect on their performance (Chapelle et al., 2015), to promote self-regulating behaviour (Mežek et al., 2022), and to enhance cognitive and emotional engagement (Mayordomo et al., 2022). Contemporary studies have investigated various ways to design effective feedback materials and activities using assessment information (e.g., May et al., 2020; Lam, 2019) and have examined the effectiveness of feedback in different learning and assessment contexts (e.g., Kim & Kim, 2017; Xiao, 2017; Otnes & Solheim, 2019; Steen-Utheim, & Hopfenbeck, 2019).

Green (2021) collated features of effective feedback, finding that it encourages learners to reflect and act, but also that it tends to be directly related to learning goals, continuous and timely, specific, task referenced, and both targeted and achievable (see Green (2021) for a more detailed exposition). As noted in Section 2.1, the design of Dr. GEPT contains many of the features of effective feedback. It is a “feedforward” design which “offers guidance on how to improve their English skills” (Liao, 2021, p.452). Specifically, Dr. GEPT is intended to encourage action, is related to learning goals, is timely, specific, targeted and achievable.

However, a key insight from the recent feedback literature is that feedback effectiveness ultimately rests on whether and how learners engage with and act on feedback (e.g., Carless & Boud, 2018; Lam, 2021). In kind, feedback is ineffective when it is not acted upon (Boud & Molloy, 2013). Accordingly, beyond crafting feedback in ways which ensure the feedback information is useful, it is acutely relevant to understand how and why learners do or do not engage with feedback, along with exploring ways to further promote learners’ engagement with feedback.

Learners’ engagement with feedback has received increasing attention in the literature on corrective feedback as well as feedback on L2 writing. Research in this literature has delimited frameworks to investigate feedback engagement along three interrelated dimensions: cognitive, affective, and behavioural. Within the context of investigating engagement with corrective feedback, according to Ellis, (2010), the cognitive dimension concerns “how learners attend to the CF [corrective feedback] they receive”, such as noticing the gap between the learner’s own production and the corrected form; the behavioural dimension concerns “whether and in what ways

learners uptake oral corrections or revise their written text”, and the affective dimension concerns “how learners respond attitudinally to the CF” (p.242). Building on Fredricks et al.’s (2004) conceptualisation of student engagement, Zhang and Hyland (2018) also define learners’ engagement with feedback on L2 writing along the three dimensions – behavioural: learners’ revision actions and the time they spend on revision; affective: their emotional responses or attitudes to feedback; and cognitive: learners’ use of “revision operations (strategies) and cognitive (metacognitive) strategies”, with the latter used to “notice, evaluate and finally improve their writing” (p.92). A number of recent empirical studies used this framework to explore learner engagement with L2 writing feedback (Cheng & Liu, 2022; Yang & Zhang, 2023; Zhang & Hyland, 2022). The present study builds on this literature, and extends the investigation to learners’ cognitive, affective and behavioural engagement with test feedback. Such an exploration may be illuminating, since Dr. GEPT provides a wider range of feedback information and advice (see Section 2.1 above) than oral or written corrective feedback.

### **2.2.2 Learner motivation as a potential factor in feedback engagement**

Though engagement with feedback is often argued to play a role in positive learning outcomes (e.g., Winstone et al., 2017; Zhang & Hyland, 2022), what motivates learners to be—and remain—engaged in feedback is uncertain. Specifically, to what extent pre-existing L2 learning motivations interact with a learner’s willingness to act on provided feedback? It is possible that feedback engagement interacts with learners’ English learning motivations, whether internal or external? For example, learners may want themselves to become proficient English users; they may feel pressure from their parents or teachers to improve their English, or they may feel confident about having the means or tools to improve their English. All of these may impact how the learners engage with their assessment feedback. Motivation plays a substantial role in language learners achieving their target proficiency, even among learners who may be deemed to have lower language learning aptitudes (Gardner & Lambert, 1972; Iwaniec & Dunn, 2020; Saito et al., 2018).

To empirically explore the potential link between feedback, motivation and learning experience, an established framework was needed. The most prominent theoretical framework for L2 learning motivation (Saito et al., 2018), and the one used in the present study, is the *L2 Motivational Self System*, or L2MSS (Dörnyei, 2005, 2009). Dörnyei’s L2MSS outlines distinct forms of L2 motivation and can be readily examined in survey format. The L2MSS motivation construct consists of three components: the *Ideal L2 Self*, the *Ought-to L2 Self*, and *L2 Learning Experience*. The first two are “future self-guides” representing two possible selves (Dörnyei, 2019, p. 20). The Ideal L2 Self is the internal desire to learn a given L2, while the Ought-to L2 Self is the perceived obligations or external expectations for learning that L2. The third component, L2 Learning Experience, reflects “the perceived quality of the learners’ engagement with various aspects of the language learning process”, where “various aspects” indicate school context, syllabi and learning

materials, learning tasks, peers, and teachers (Dörnyei, 2019, p.25). Given this description, of the three primary elements of motivation described in the L2MSS, feedback is likely to have a dynamic relationship with L2 Learning Experience.

The three L2MSS motivation constituents have been operationalised in various empirical studies (e.g., Dunn & Iwaniec, 2022; Li, 2014; Saito et al., 2018). Motivational theory helps explain differences in proficiency among language learners (Dunn & Spiby, 2021) and there is a well-established relationship between a learner's future self (the person's imagined future language proficiency and use) and the learner's current behaviour (Saito et al., 2018), indicating that language learners who imagine their future selves as proficient, active users of a language may be more likely to take steps toward achieving their imagined goals than learners who do not imagine their future selves as being proficient, active users of the language. However, there are some relevant limitations in the literature to be addressed.

One limitation in the existing L2MSS literature is that despite explaining learner variance, results have been mixed (Dunn & Iwaniec, 2022). A second limitation is a gap in the literature, where among the three components of L2MSS, there remains a paucity of research addressing L2 Learning Experience (Dörnyei, 2019). Huang (2019) explains that many studies have historically omitted learning experience to focus on the motivational impact of Ideal L2 Self and Ought-to L2 Self on language learning (e.g., Csizér and Dörnyei 2005a, 2005b; Csizér and Kormos 2009; Kormos et al., 2014); however, when it was included as a research interest, learning experience tended to be the strongest predictor out of the three motivational subconstructs (e.g., Csizér & Kormos 2009; Islam et al., 2013; Lamb 2012).

Though the L2MSS has helped establish an influence of motivation on language learning outcomes, within the fields of LOA and language assessment in general, there is relatively little research on the relationship between assessment feedback and motivation (Turner & Purpura, 2016). This may be partly explained by feedback being an element closely related to the underexplored L2 learning experience component. However, given the important role of feedback in learners' learning journeys as Carless (2007, p.60) highlighted as one of the three principles of LOA – “Feedback should be timely and forward-looking so as to support current and future student learning” – it is crucially important to fill this gap, and this study is part of such endeavours.

### **2.2.3 Motivation studies on Taiwanese L2 English learners**

Results of previous motivation research have been mixed across languages, learners, and contexts (Dunn & Iwaniec, 2022), making it appropriate to conduct a targeted search of the literature for the context of Taiwanese English language learners. Consequently, a review of the literature was made using the ProQuest interface. ProQuest was selected as it offered access to multiple databases, was human curated, permitted within-document searches, and offered filtering for full text, peer reviewed articles. Key terms searched were the following: Taiwan, English,

learning, motivation, “ideal self”, and “ought to self”. Used concurrently, these terms yielded 84 results. Those results were refined to strictly include peer reviewed articles, leaving 11; five were relevant to the current research. These articles were published between 2017 and 2021, indicating a nascent domain of empirical inquiry. Though not always specific to feedback, these studies on English learning motivation help elucidate engagement in a Taiwanese context along with the impact of learning experience on L2 acquisition.

Supporting Dörnyei (2019), learning experience appears to play an important role in Taiwanese learners’ motivations. Huang (2019) examined the motivations of Taiwanese university students (average age 19.83 years) to study English compared to other languages (Southeast Asian, Northeast Asian, and European languages). Results indicated that intended effort for studying English was predicted best by the learner’s learning experience. Further, learning experience was shown to be the most robust predictor, explaining variance to a greater extent than any other predictor.

Wei and Xu (2021) further helped uncover motivations among Taiwanese learners, exploring factors which directly and indirectly affect college freshmen learners’ willingness to communicate. Reasoning that alleviating stress promotes willingness to communicate, researchers targeted emotional support provided by teachers when advising such things as “how to do well in class, how to get satisfactory results in exams, and the pressure of wanting teachers to give some help but being ashamed to talk” (Wei & Xu, 2021, p.262). Though teachers’ emotional support seems to implicate both L2 Learning Experience and feedback, these factors were not explicitly addressed. Instead, Wei and Xu focused on Ideal L2 Self and Ought-to L2 Self. The researchers found that teachers’ emotional support directly impacted learners’ willingness to communicate, and mediated willingness to communicate through Ideal L2 Self and Ought-to L2 Self (along with acculturation to culture). They also found that Ideal L2 Self was a stronger motivating factor than the Ought-to L2 Self.

Tsao (2021) investigated the causal relationships between engagement with feedback and written performance among college undergraduates. They found that learners having a clear L2 Ideal Self increased learner engagement and enhanced both intrinsic and extrinsic motivation. The Ought-to L2 Self was not found to significantly affect engagement.

Boo et al. (2015) reported that most motivation studies have been conducted with tertiary students—as is true of the studies discussed thus far—while students enrolled in compulsory education constitute the largest group of language learners. Notably, as English is compulsory in Taiwan among secondary school students and young learners are still forming their “selves” (Collett, 2014; Taylor et al., 2013), they may be influenced less by an Ideal L2 self than by an Ought-to L2 Self. It is therefore both relevant and valuable to reveal English learning motivations among adolescents. Two studies, Huang 2017a and 2017b, helped glean what may be expected from Taiwanese English language learners.

Contrasting with findings describing college language learners, Huang & Chen (2017a) found that among adolescent learners (age 11-16 years), the Ought-to L2 Self played a more significant role predicting behaviour than Ideal L2 Self. The Ideal L2 Self was only a minor predictor. Results were congruent among learners who strictly studied with formal schooling and those who augmented formal schooling with private tutoring.

Huang and Chen (2017b) provide insight into why the L2 Ought-to Self is so strong among Taiwanese adolescents. The researcher interviewed nine junior high school students (aged 13-17) and their parents to uncover the role of motivation types on learning English. As may be expected, parents significantly and substantially influenced the learners' Ought-to Self. Huang and Chen (2017b) reported that "the parents were unequivocal about English as a means of success in the globalized world, its superior status over other academic subjects, and its permeation into career opportunities and social standing" (p.249). Further, this was readily understood by the adolescent learners as each "described in detail" the deleterious consequences of not continuing to study English (p.250).

Initial reports seem to show that the Ought-to Self among adolescents learning English is a prominent motivator, more so than young adults. Though promising, alone, these reports are preliminary and require further research for support. Tsao (2021) found that feedback engagement was increased by having a clearly formed L2 Ideal Self; however, considered with Huang and Chen (2017a) and (2017b), it is unclear if this would be applicable to younger learners.

Given the scarcity of studies into Taiwanese adolescents' L2 English learning motivations as identified in our ProQuest search, it is clear that more research was needed to understand the motivational profiles of adolescent learners in Taiwan. Most recently, Dunn and Spiby (2021) conducted a large-scale, cross-sectional investigation in which 2,994 grade 9 and 2,651 grade 12 students from 439 schools in Taiwan responded to a motivation questionnaire. The students also took the Aptis Teens test, which allowed the researchers to compare students' motivational profiles across different proficiency levels as well as between the two year groups. The questionnaire involved eight constructs: Ideal L2 self, English self-concept, Language learning experience, Motivated behaviour, International orientation, Instrumentality, Parental encouragement, and Ought-to L2 self. Congruent with previous studies in non-Taiwanese context (e.g., Papi & Hiver, 2020), a strong correlation between Language learning experience with all other seven constructs were found in the study. In particular, Language learning experience was closely related to students' Self-concept for both year groups. They also discovered that intrinsic motivations played a more central role in learners' learning outcomes as measured by the test than extrinsic motivations. It was especially notable that for both grade 9 and 12 groups, Parental encouragement and Ought-to L2 Self showed the weakest correlations with the test score. As such, Dunn and Spiby's (2021) study greatly contributed to filling the gap of the previous literature which called for more motivation research for adolescent learners in Taiwan.

Building on Dunn and Spiby’s study and based on the above literature review which made it clear that further research is necessary to explore the relationship between learners’ motivation, learning experience and feedback perceptions, the first focus of the current research is the role of feedback perceptions in relation to learners’ learning experience and motivation. Then, in light of the launch of the innovative AI-generated feedback system, *Dr. GEPT*, we also aim to offer a better understanding of the role of the Dr. GEPT feedback in their individual learning journeys.

### 3. Research questions

The current research was guided by the following four research questions.

Among senior high school students in Taiwan:

**RQ1.** What are their motivations to learn English?

**RQ2.** Do these learners’ L2 motivation and general perceptions about assessment feedback interact? If so, how?

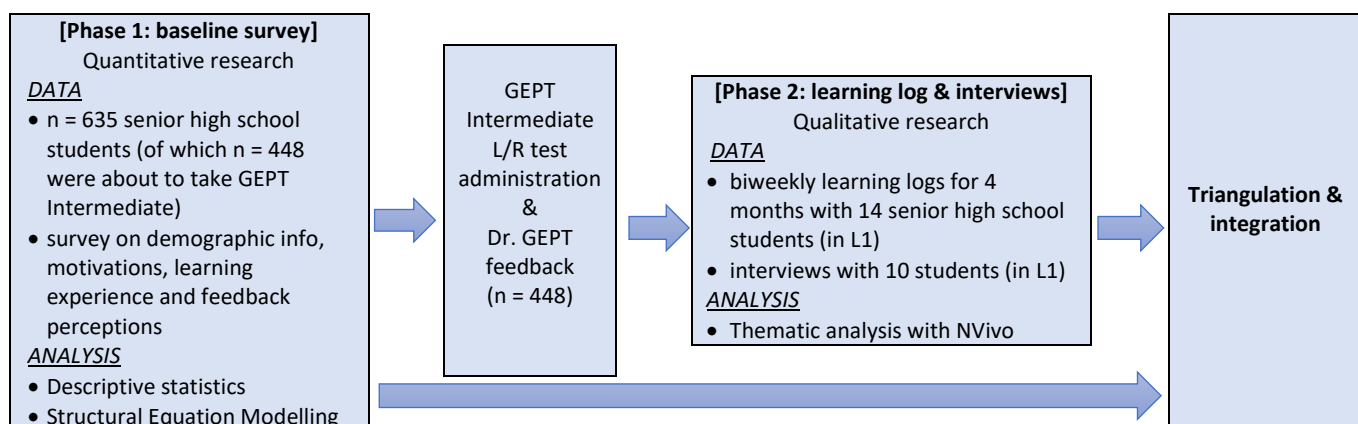
**RQ3.** How do these learners engage with feedback from Dr. GEPT?

**RQ4.** What role(s) does Dr. GEPT feedback play in shaping the learners’ learning journeys?

### 4 Research design and methods

This was a sequential mixed-methods study, where quantitative data are gathered by a large-scale baseline motivation survey (Phase 1), followed by a small-scale qualitative phase to explore and document – in greater detail and depth – individual learners’ learning journeys and engagement with Dr. GEPT feedback (Phase 2). Figure 5 shows an overview of the research design.

**Figure 5: Mix-methods research design**



## 4.1 Participants

Phase 1 of the study involved 635 participants from 21 regions across Taiwan. Table 1 shows a tabular breakdown of participant geography.

**Table 1: Participants' geographic locations**

Location	Frequency	Percent	Location	Frequency	Percent
Taipei City	166	26.1	Hsinchu County	11	1.7
Kaohsiung City	138	21.7	Hsinchu City	9	1.4
Taichung City	72	11.3	Taitung County	6	0.9
New Taipei City	42	6.6	Hualien County	6	0.9
Taoyuan City	36	5.7	Chiayi County	4	0.6
Changhua County	35	5.5	Keelung City	3	0.5
Tainan City	28	4.4	No response	2	0.3
Pingtung County	24	3.8	Yilan County	2	0.3
Yunlin County	18	2.8	Penghu County	2	0.3
Chiayi City	17	2.7	Nantou County	1	0.2
Miaoli County	12	1.9	Kinmen County	1	0.2

Note: Region data was missing for 2 participants.

The geographical distribution of participants in this study is largely representative of the general test-taker population of GEPT Intermediate Listening and Reading, with the percentage of participants from southern Taiwan slightly higher than the test-taker population (see Appendix A).

Participant demographic information showed that among the individuals who indicated their gender, 369 were female and 257 male – thus generally representative of the gender ratio (55% female and 45% male) in the GEPT Intermediate Listening and Reading test-taker population. Age was not explicitly collected as a variable of interest; however, age in Taiwanese high schools is largely homogenous across study years, where year 1 are 16 years of age, year 2 are 17, and year 3 are 18. The majority of participants (n = 519) attended a public school compared to 108 who attended private school. Most students were in Year 1 (n = 306) and Year 2 (n = 256), with 65 being in year 3 (Eight participants did not indicate their year of study).

Of the 635 students (Participant ID: P001 – P635), 448 students were recruited from those who had registered for the upcoming GEPT Intermediate Listening and Reading test, and 187 were recruited through several senior high schools across Taiwan. For the former group, the survey was administered online, and the latter group took a paper-based survey.

Of the Phase 1 participants, 14 students participated in Phase 2 which involved fortnightly learning logs four months, and of the 14 participants 10 students were further interviewed after completing the final learning log. Applying Wu's (2021) classification of GEPT score groups (non-passing, close to passing, passing, and passing with high scores), it was originally planned to recruit balanced numbers from the 'close to passing' (120-159) and 'passing' (169-189) groups based on the GEPT Intermediate L/R test that they took between Phase 1 and Phase 2 studies.

However, given that the participation was on a voluntary basis, three ‘near passing’ and 11 ‘passing’ students took part in this phase (see Table 2).

**Table 2: Phase 2 participants**

Participant ID	Total Score	Test outcome	Learning log	Interview
P125	144	Close to passing	√	√
P427	127	Close to passing	√	√
P341	157	Close to passing	√	√
P441	181	Passing	√	√
P075	168	Passing	√	
P434	181	Passing	√	√
P258	181	Passing	√	
P013	182	Passing	√	√
P339	178	Passing	√	√
P127	175	Passing	√	
P014	182	Passing	√	
P298	168	Passing	√	√
P234	164	Passing	√	√
P400	171	Passing	√	√

Upon the University of Bedfordshire’s ethical clearance and communication with LTTC, an information sheet was given to the students, and a consent form were signed by the students and their parents prior to their participation in the research. All forms were prepared in Mandarin Chinese.

## 4.2 Data collection and analysis

### 4.2.1 Phase 1

The aim of Phase 1 is to gain a comprehensive understanding of motivation profiles, language learning experience and feedback perceptions of senior high school students who learn English in Taiwan and to gain insights into possible relationships between L2 motivation, learning experience and general perceptions about assessment feedback.

The survey items drew on the previous motivation research using the L2 Motivational Self System (L2MSS; e.g., Dunn & Iwaniec, 2022; Dunn & Spiby, 2021; Saito et al., 2018; Papi, 2010; Taguchi, et al., 2009; Teimouri, 2017; You et al., 2016) and a body of literature on feedback perceptions. In particular, Strijbos et al.’s (2021) comprehensive review of feedback perception questionnaires informed the development of items to measure feedback perception (c.f., Table 1 of Strijbos et al.’s (2021, pp.3-4) covered eight feedback perception inventories - Gibbs & Simpson, 2003; Steelman et al., 2004; Lizzio & Wilson, 2008; King et al., 2009; Strijbos et al., 2010; Linderbaum & Levy, 2010; De Kleijn et al., 2013; Brown et al., 2016).



Following Iwaniec and Dunn's (2021) advice, the survey items are also scrutinized and/or newly formulated based on the needs and contextual factors unique to the specific group of learners in Taiwan. To avoid the risk of large estimation errors, at least 3 items were included per construct (Kline, 2005). As shown in Appendix B, the questionnaire consisted of the following five main sections. All question items were translated into Mandarin Chinese, and the questionnaire was piloted with a small number of participants prior to its administration.

- Section A: About yourself
- Section B: Motivation
  - B1: Ideal L2 Self
  - B2: Ought-to L2 Self
  - B3: Instrumentality (Promotion)
  - B4: Instrumentality (Prevention)
- Section C: Learning Behaviour, Self-concept, Experience
  - C1: Motivated Learning Behaviour
  - C2: English Self-concept & Language Learning Experience
- Section D: Feedback Perceptions
- Section E: Further Participation

### ***Analysis of the questionnaire data***

First, the survey responses were summarised with descriptive statistics to inform general patterns. To model the relationships between motivation, experience and feedback, data on participants' motivation (Section C), learning behaviour, self-concept, experience (Section C) and feedback perceptions (Section D) were analysed through a confirmatory factor analysis (CFA) and structural equation modelling (SEM) using the software package, AMOS (Arbuckle, 2014). CFA was conducted by obtaining fit and parameter indices, and then using those indices to inform model modifications. Chi-square values are used to help establish model fit, with non-significance suggesting a good fit; however, chi-square is susceptible to sample size, leading to the researchers to employ the modified chi-square statistic (chi-square/degrees of freedom) to minimise the effect of sample size (Hooper et al., 2008). The recommended index of up to 5 was used as an acceptable ratio (Wheaton et al., 1977). Additional indices included Root Mean Square Error of Approximation (RMSEA), targeting values below .08 to indicate good fit (MacCallum et al., 1996), and the baseline comparisons, Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), and Comparative Fit Index (CFI). Each of the baseline comparisons used a minimum criterion index score of .9 (Bentler and Bonett, 1980; Kline 2005), with an ideal target for TLI of .95.

## **4.2.2 Phase 2**

The data collection in this phase took two forms – learning logs and interviews.

### ***Learning logs via online forms***

Fourteen learners kept biweekly learning logs after they had received their GEPT Intermediate Listening and Reading test results and Dr. GEPT feedback. Learners were asked to submit an entry to the online form every two weeks over a period of four months, between March and July 2022.

The logs contained brief notes on the participants' English learning activities in the previous two weeks, as well as whether and how they have engaged with the Dr. GEPT feedback. The online log templates were modified to suit the specific time points of the four-month period. For example, log 1 included questions about the participants' reactions to the Dr. GEPT feedback that they received, and the last three logs (logs 6-9) included questions about their experience of taking any standardised test in the past 3 months and their intentions to take those tests in the next 6 months (see Appendix C and Appendix D for the log templates). The log responses were also used as stimuli during interview sessions. The log entries were translated into English by one of the researchers who is a native speaker of Mandarin Chinese.

### ***Interviews***

Of the 14 participants in the learning logs, 10 were interviewed by one of the researchers. The interviews took place after the final log (log 9) had been completed. Each interview took approximately 15-20 minutes, conducted in the participants' L1 – Mandarin Chinese. All interviews were audio recorded. The interviews were semi-structured, focusing mainly on affective responses to feedback, goal-setting, whether and how Dr. GEPT was used, and suggestions for Dr. GEPT's further development. The interview questions were customised according to each participant's learning log entries. All log results were tabulated in an Excel sheet, so that the interviewer can readily see an overview of each student's learning log responses, and the interviewer used interview questions and guidelines (Appendix E) in conjunction with the learning logs overview.

The interview recordings were transcribed in Mandarin Chinese and translated into English by one of the researchers who is a native speaker of Mandarin Chinese.

### ***Analysis of the qualitative data***

The learning logs and the interview data were thematically analysed using NVivo 12. Initial coding was performed on 20% of both datasets by one of the researchers, generating a preliminary coding scheme for each dataset using the learning log and interview questions and the participants' responses. The same data was then second coded by another researcher, and inter-coder reliability (Cohen's kappa) was computed. The agreement rate between the two coders for the learning logs data was 90% ( $k = 0.90$ ), while the intercoder agreement for the interview data was just over 60% ( $k = 0.61$ ). The lower agreement for the interview data was discussed, and it was found to be largely due to disparate interpretations based on the available translation. Upon clarification of translations and reanalysis, agreement was found

to be approximately 95% ( $k = 0.95$ ). After all discrepancies between the two researchers were discussed and consensus was established, one of the researchers (the first coder) coded the remaining learning log and interview data. The final coding schemes which capture the responses by all learning log and interview participants are presented in Appendix F. On completing the coding, the researcher identified emerging themes among the coded data, and further integrated and interpreted the data within and across the themes, as well as across the two datasets (learning logs and interviews).

## 5. Results

### 5.1. Phase 1 survey

#### 5.1.1. Learners' English test-taking and learning information

The first section of the survey explored the participants' GEPT test-taking experience. Four hundred six participants revealed having taken the GEPT previously compared to 226 who had not. A pass rate of 63.5% was found among the participants, compared to the average pass rate of 52% in the GEPT Intermediate Listening and Reading test-taker population in 2020-2022. Three levels of the GEPT were reported: elementary ( $n = 242$ ), intermediate ( $n = 159$ ), and high intermediate ( $n = 5$ ). Of the total of 406 participants, 207 took all 4-skill test with listening, reading, speaking, and writing components; 198 participants took listening and reading alone; and 230 participants did not indicate whether they took 2-skill or 4 skill GEPT exams. On reported arithmetic average, the number of months to have passed since taking the exam was 16.5 ( $SD = 15.6$ ).

Information on classroom and study practices were also obtained. Among the sample population, the average number of English lessons taken per week at school was 5.05 ( $SD = 2.04$ ). Time spent on reading, speaking, listening, and writing in their English classes at school was measured by rank (1-5), with 1 reflecting the most time spent on a skill and 5 representing the least. Descriptively, responses showed that vocabulary and grammar were the primary areas of focus ( $M = 2.41$ ,  $SD = 1.46$ ), followed by reading ( $M = 2.58$ ,  $SD = 1.32$ ), listening ( $M = 3.08$ ,  $SD = 1.17$ ) and writing ( $M = 3.13$ ,  $SD = 1.23$ ), and finally speaking ( $M = 3.67$ ,  $SD = 1.52$ ).

The participants were also asked about their English language use outside the classroom. This revealed the number of hours spent per week on studying (e.g., preparation, revision, homework) for English classes at school ( $M = 3.06$ ,  $SD = 3.05$ ), preparing for standardised tests ( $M = 1.85$ ,  $SD = 2.93$ ), and private paid study ( $M = 1.99$ ,  $SD = 2.05$ ), and using English for leisure ( $M = 2.56$ ,  $SD = 5.06$ ).

As an indicator of potential underlying motivations, participants were asked whether any member of the family used English for work or leisure. Though most participants (70.4%) did not have family who used English for work or leisure, a sizable minority did (29.6%).

### 5.1.2. Learners' L2 motivation profile and feedback perceptions

This section reports results from a 6-point Likert scale survey that was administered to students (1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = disagree, 6 = strongly agree). Results were analysed through descriptive summary statistics and structural equation modelling (SEM).

Table 2 provides an overview of the participants' responses and the internal consistency of the constructs targeted to be measured in this survey. The average ratings on all scale categories, except for English Self-concept & Language Learning Experience ranged from 4.08 to 4.70, indicating the learners' (slight) agreement to those variables (i.e., '4. *slightly agree*' and '5. *agree*'). For English Self-concept & Language Learning Experience, the mean score was below '*slightly agree*' (3.77). Among the four motivational constructs - i.e., Ideal L2 Self, Ought-to L2 Self, Instrumentality (Promotion), and Instrumentality (Prevention), the mean of Ought-to L2 Self (4.08) seemed to be lower than the other three categories (4.62-4.70). Cronbach's alpha values ranged from .75 to .94, indicating that the internal consistency of all the scales is acceptably high, given the small number of items in each category (for more information, see Appendix G).

**Table 2: Summary of the motivational and feedback survey responses**

Scale (number of items)	M	Total (n = 624)	
		SD	Cronbach's alpha
Motivation			
Ideal L2 Self (5)	4.62	1.21	.86
Ought-to L2 Self (5)	4.08	1.43	.80
Instrumentality: Promotion (5)	4.62	1.31	.75
Instrumentality: Prevention (3)	4.70	1.33	.76
Motivated Learning Behaviour (4)	4.30	1.15	.88
English self-concept & Language Learning Experience (5)	3.77	1.29	.88
Feedback Perceptions (13)	4.46	1.23	.94

*Note.* The scores of two items (D1, D9) in feedback perceptions were reversed due to their negative wording.

The next three tables present the participants' responses to individual question items included: Table 3 for motivation items, Table 4 for Motivated Learning Behaviour and English Self-concept & Language Learning Experience items, and Table 5 for Feedback Perception items.

**Table 3: Participants' responses to individual motivation items**

	Mean	SD
<b>Ideal L2 Self</b>		
B1.1. I can imagine myself in the future as someone who is able to speak English.	4.63	1.19
B1.2. I can imagine a situation in the future where I am speaking English with international friends or colleagues.	4.75	1.11
B1.3. I can imagine myself living abroad and using English to communicate in daily life.	4.17	1.36
B1.4. Whenever I think of my future career, I imagine myself using English.	4.87	1.16
B1.5. I can imagine myself studying in a university where my courses are taught in English.	4.69	1.10
<b>Ought-to L2 Self</b>		
B2.1. Learning English is necessary because people surrounding me expect me to do so.	4.95	1.12
B2.2. My parents believe that I must study English to be an educated person.	3.64	1.41
B2.3. I have to learn English, because if I do not, my parents will be disappointed with me.	3.37	1.46
B2.4. I study English because close friends of mine think it is important.	4.05	1.30
B2.5. I study English because my teachers think it is important.	4.36	1.28
<b>Instrumentality: Promotion</b>		
B3.1. Studying English is important to me because it will be useful for getting a good job.	5.21	0.93
B3.2. Studying English is important to me because it will be useful for getting into a good university.	5.24	0.92
B3.3. Studying English is important to me because I am planning to study abroad.	3.98	1.47
B3.4. Studying English is important to me in order to gain others' respect.	3.84	1.32
B3.5. Studying English is important to me in order to know more about other cultures.	4.85	1.11
<b>Instrumentality: Prevention</b>		
B4.1. I have to learn English because I don't want to fail the English subject in high school.	4.86	1.26
B4.2. I have to learn English because without passing the English subject I cannot graduate.	4.40	1.48
B4.3. Studying English is necessary for me because I don't want to get a poor score or a fail mark in English proficiency exams (e.g. GEPT).	4.85	1.19

The following can be observed in Table 3:

- The students can imagine themselves using English in the future in social, educational and professional domains. However, they have a less clear image of themselves living abroad and using English on a daily basis (B1.3).
- While they generally agree that people around them expect them to learn English, they seem to perceive relatively more pressure from their friends and teachers, compared to the pressures they get from their parents (B.2.2, B2.3).
- Getting a good job and being admitted to a good university seemed to be very strong motivations behind their English learning (B3.1, B3.2). The mean scores for these questions fell between 'agree' and 'strongly agree'. Knowing more about other cultures was also highly rated, whilst their average ratings for studying abroad and gaining others' respect were relatively low (between 'slightly disagree' and 'slightly agree').
- Not failing the English subject at school and not failing English proficiency exams (B4.1, B4.2) also seemed to be important factors to motivate their

English learning, with both means being close to ‘agree’ (4.86 and 4.85 respectively).

Table 4 indicates the learners’ motivated learning behaviour and their English Self-concept & Language Learning Experience.

**Table 4: Participants’ responses to individual motivated learning behaviour items**

	Mean	SD
<b>Motivated Learning Behaviour</b>		
C1.1. I work hard at studying English.	4.28	1.09
C1.2. I'm doing my best to study English	4.18	1.16
C1.3. I spend lots of time studying English.	4.00	1.14
C1.4. When my English Exam score is lower than expected, I work hard to study for the next.	4.73	1.10
<b>English Self-concept &amp; Language Learning Experience</b>		
C2.1. I look forward to my English classes.	3.91	1.19
C2.2. I really enjoy learning English.	4.12	1.20
C2.3. I usually get good marks in English.	3.90	1.26
C2.4. Compared to other students, I'm good at English.	3.60	1.34
C2.5. Studying English comes easy to me.	3.30	1.30

Among the descriptive statistics shown in Table 4, it is notable that:

- the students generally study English hard and do their best (with means above *‘slightly agree’*). However, they work especially harder when their exam score is lower than expected in order to achieve a better score in the next test (C1.4; mean close to *‘agree’*);
- in general, they perceive their English ability more positively than negatively (C2.3, 2.4). While they tend to enjoy learning English (C2.1, C2.2), it does not seem to mean that studying English is felt very easy, with the mean score of item C2.5 being close to *‘slightly disagree’*.

Next, responses to each of the 13 items in the feedback perceptions category are summarised in Table 5. Judging from the five most positively rated items (highlighted in the table):

- the learners are most keen to learn about specific strengths and weaknesses of their performance in an exam (D3);
- they appreciate specific resources suitable to their level of English (D6);
- an understanding of their strengths and weaknesses will motivate them to study English (D7, D8); and
- in general, receiving feedback comments on their exams facilitates their learning (D2).
- on the other hand, their ratings for those items on specific use of feedback are relatively lower (D4, D5, D10-13).

**Table 5. Participants' responses to Feedback perceptions items**

	Mean	SD
D1. Exam scores/grades are more important than the feedback comments about my performance. <i>(n.b. scores not reversed here)</i>	3.97	1.34
<b>D2. I can learn more if I receive feedback comments on my exams.</b>	<b>4.80</b>	<b>0.99</b>
<b>D3. I like to know specific strengths and weaknesses of my performance in an exam.</b>	<b>5.11</b>	<b>0.89</b>
D4. I use feedback comments to review how I have done in an exam.	4.28	1.21
D5. I pay careful attention to feedback.	4.49	1.13
<b>D6. I like specific resources suitable to my level of English to be provided to me (e.g. website resources, English learning programme/activity).</b>	<b>4.97</b>	<b>0.91</b>
<b>D7. Getting to know my strengths (e.g. 'Well done! You're good at X') motivates me to work harder in learning English.</b>	<b>4.88</b>	<b>1.03</b>
<b>D8. Getting to know my weaknesses (e.g. 'You need to improve on X') motivates me to work harder in learning English.</b>	<b>4.81</b>	<b>1.02</b>
D9. If feedback comments point out my mistakes, I feel frustrated. <i>(n.b. scores not reversed here)</i>	3.79	1.22
D10. I believe that I have the ability to make use of feedback effectively.	4.57	0.98
D11. It is my responsibility to apply feedback to improve my performance.	4.51	1.05
D12. I use feedback comments on an exam to improve my English in general.	4.62	1.00
D13. I use feedback comments on one exam to determine how I prepare for the next exam.	4.64	1.01

Having reported the overall patterns of the responses, we now move on to exploring the relationships between different dimensions of motivation, motivated learning behaviour, self-concept & language learning experience, and feedback through structural equation modelling (SEM). Relationships were posited by viewing the established literature for motivational theory in L2 (e.g., Dörnyei's L2 Motivational Self System) and feedback.

Confirmatory factor analysis (CFA) of the full proposed model displayed suboptimal indices. The CMIN/DF statistic was larger than 5 (5.054), baseline indices were below .9 (IFI = .805, TLI = .790, CFI = .804), and RMSEA was above .08 (.081). Consequently, each construct was examined to identify poorly performing items. Standardised factor weights were explored, with 0.5 as the cut-off (Hair et al., 2006). Items D1 and D9 in Feedback Perceptions were below the noted threshold and were omitted. Three of the five items (B3.3, B3.4, B3.5) for Instrumentality Promotion were removed. After removing these items, only two items remained to reflect the construct, and Instrumentality Promotion was subsequently omitted entirely. Additionally, Modification indices (MI) were viewed to identify error terms within a construct which displayed large MI (Hooper et al., 2008). Several cases above the MI value of 20 were marked in the model as covarying. Prior to applying any changes, each potential modification identified was evaluated against the construct intended to be measured by the survey item, to avoid modal modifications driven entirely by data.

The SEM showed the structural relationships between the constructs investigated. Several models were considered from the relevant literature to inform the structural pathway, including Jianying (2016) and Papi (2010), where Experience was a mediating variable for learning behaviour. Figure 6 was the proposed model, with Figure 7 deemed to be the optimal model.

**Figure 6. Proposed SEM pathway for L2 motivations and feedback**

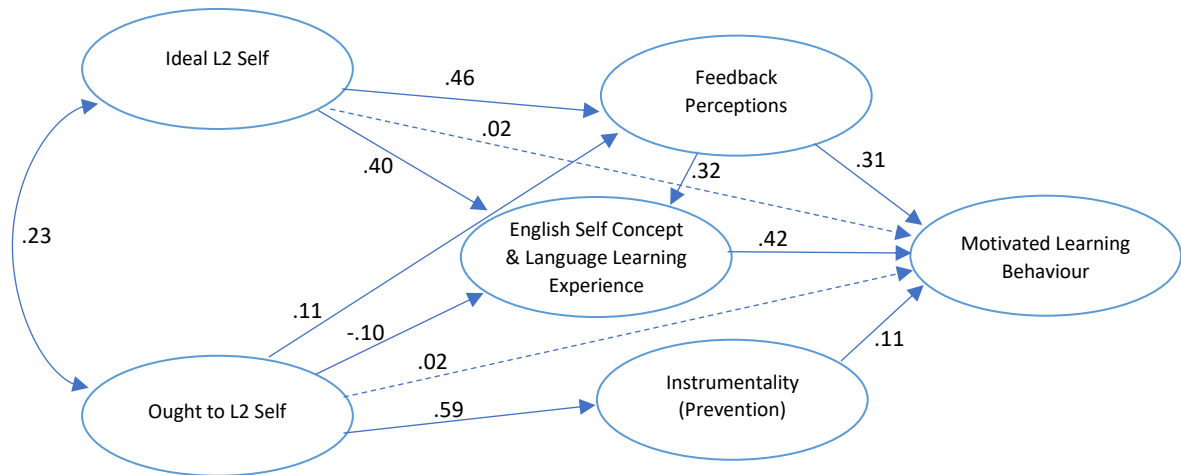
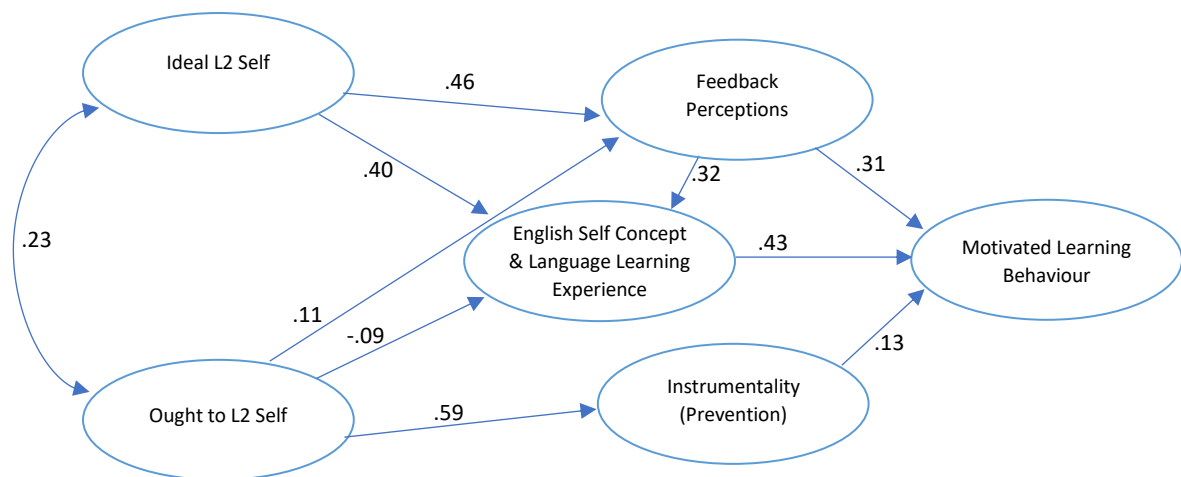


Figure 6 illustrates the initially posited SEM pathway (error terms covaried). It shows statistically significant relationships (solid lines) and non-significant relationships (dotted lines) between constructs. The non-significant path displayed by the dotted lines shows the initially posited relationships and their direction between Ideal L2 Self and Motivated Learning Behaviour, and between Ought to L2 Self and Motivated Learning Behaviour. Removing these paths resulted in a better model fit, shown in Figure 7.

**Figure 7. Optimal SEM pathway for L2 motivations and feedback**





Overall, the model constituted an acceptable fit for the data: CMIN/DF = 3.045, IFI = .924, TLI = .915, CFI = .924, RMSEA = .058. CMIN/DF was within the specified target range ( $\leq 5$ ), as were the CFI value ( $\geq 0.90$ ). However, despite reaching the conventional TLI cut-off of .9 (Bentler and Bonnet, 1980), the model's TLI of .915 did not reach the higher threshold of  $\geq 0.95$  suggested by Hu and Bentler (1999). Consequently, a level of caution must be used in interpreting results.

Shown in Figure 6 and Figure 7, and pertinent to the present research, Feedback Perceptions influenced Motivated Learning Behaviour both directly and indirectly, mediated through English Self-concept & Language Learning Experience. It is particularly interesting to note that 31.3% of the variance in Motivated Learning Behaviour can be accounted for by Feedback Perceptions. Feedback perceptions also accounts for 32.1% of the variance in English Self-concept & Language Learning Experience.

As a mediating variable, English Self-concept & Language Learning Experience was found to significantly influence Motivated Learning Behaviour, explaining 43.2% of the variance in Motivated Learning Behaviour.

The factor, Feedback Perceptions, was influenced by Ideal L2 Self (46.3%) and Ought-to L2 Self (10.9%). The larger effect for Ideal L2 Self compared to Ought-to L2 Self indicates that learners' perceptions of feedback are more strongly influenced by intrinsic factors than extrinsic factors.

Ideal L2 Self and Ought-to L2 Self were found to be correlated exogenous latent factors. Ideal L2 Self and Ought-to L2 Self were found to influence Motivated Learning Behaviour through Feedback Perceptions and English Self-concept & Language Learning Experience, rather than having a direct significant impact as previously posited in Figure 6.

The final model in Figure 7 also shows that Ought-to L2 Self additionally accounts for 58.8% of the variance in Instrumentality (Prevention), which itself has an impact on Motivated Learning Behaviour (12.7%). Ought-to L2 Self had a negative impact on English Self-concept & Language Learning Experience.

## 5.2. Phase 2 learning logs and interviews

The qualitative analysis of learning logs ( $n = 14$ ) and interviews ( $n = 10$ ) addresses the following two research questions:

**RQ3.** How do learners engage with feedback from Dr. GEPT?

**RQ4.** What role(s) does Dr. GEPT feedback play in shaping the learners' learning journeys?

Findings from the thematic analysis of learning logs and interviews will be presented according to the following themes and sub-themes:

### **1. First affective responses and perceptions of usefulness**

- What were learners' emotional responses to the test results and feedback, and why?
- In what ways did they consider Dr. GEPT feedback useful?

### **2. Goal setting following the GEPT test in February 2022**

- What goals or action plans did learners have following the test?
- Did Dr. GEPT feedback play a role in shaping these goals or action plans?

### **3. Integration of Dr. GEPT into learning activities**

- What learning activities did learners engage in outside school?
- Was Dr. GEPT feedback integrated into learning activities? If so, how?

### **4. Engagement with individual sections of Dr. GEPT feedback**

- How did learners engage with "analysis of strengths and weaknesses"?
- Which pieces of "learning advice" did learners take? How did the advice shape their learning? What might affect the learners' uptake of the advice?
- How have the learners used the section "vocabulary and sentence patterns"? In what ways did they find the section useful / less useful?

### **5. Factors affecting learners' longer-term engagement with Dr. GEPT feedback**

- What were the reasons for learners not persisting to use Dr. GEPT feedback in learning activities?
- What factors might relate to the nature of Dr. GEPT feedback?

### **6. Next English test, test preparation and involvement of Dr. GEPT**

- Did learners have plans to take another test in the near future?
- Are learners making use of Dr. GEPT feedback in their test preparation? If so, how?

### **7. Learners' 'wish list': Suggestions for further development of Dr. GEPT feedback**

- What potential changes or new features did learners suggest which might increase their engagement with Dr. GEPT?

## **Theme 1: First reactions – Affective responses and perceptions of usefulness**

Learning log 1 aimed to explore learners' *affective engagement* (Ellis, 2010; Zhang & Hyland, 2018) with feedback. We asked participants to select from 10 options how they felt when they first received their test results and Dr. GEPT feedback. Of the 14 participants, eight reported positive feelings (e.g. *excited, more confident, more motivated*), three reported negative (e.g. *upset, frustrated, discouraged*), and three reported a mix of positive and negative feelings (e.g. *upset and more motivated; frustrated and encouraged*).

In the interview, we asked participants the reasons for their selected feelings. The analysis revealed that one main reason relates to whether the test results aligned with the participants' own expectations. P434 in Extract 1<sup>1</sup> indicated feeling *excited* and *satisfied* (positive) in learning log 1; whereas P298 in Extract 2 indicated feeling *frustrated* (negative).

*Extract 1*

P434: I took the test in February because our teacher wanted us to pass the Intermediate level at least. But I was really busy back then. I bought some books about the GEPT test, but I didn't finish them. So I was thrilled when I learned that I passed the test.

*Extract 2*

P298: I didn't expect that I would perform so poorly in certain parts. I felt like I didn't study hard enough and that I could do better.

P434 was pleasantly surprised by having passed the test. P12, while having passed the test overall, had not anticipated performing "so poorly" in certain parts as indicated in the "Analysis of strengths and weaknesses".

Another reason reported by the participants relates to whether their study effort had paid off:

*Extract 3*

[indicated feeling *upset* and *frustrated* in log 1]

P341: That was because I did prepare for the test, but I still performed poorly in reading. That's why I was feeling a bit upset.

*Extract 4*

[indicated feeling *excited*, *satisfied*, *encouraged*, *more confident*, and *more motivated* in log 1]

P013: I've taken the Intermediate test more than one time. This time [the February test], I scored higher and reached the passing criteria. In my prior attempts, I didn't pass but only came close to the passing scores. But this time, I passed the test, so I was very happy. I think it's likely because my vocabulary has expanded since I entered senior high school. The vocabulary range covered in senior high is much bigger, and besides, these words appear in GEPT tests more frequently.

In elaborating on their feelings towards the test results and Dr. GEPT feedback, some participants displayed a determination to further improve. For example, when asked why they indicated feeling *upset* but *motivated* in learning log 1, P427 explained:

---

<sup>1</sup> Extracts, otherwise specified, are from the interviews.

*Extract 5*

P427: I felt like I didn't perform well on the test. There was still a lot of room for improvement in many areas.

Int: But at the same time, you also felt more motivated?

P427: Yeah, I felt like I still needed to challenge myself. This is just one poor showing.

When prompted by the interviewer about feeling a mixture of positive and negative emotions, their response showed a forward-looking orientation, a determination to further improve. This echoes the responses to feedback from learners considered to be skilled self-regulators in Yang and Zhang (2023), who converted negative emotions into activating emotions.

It is noteworthy that, for two participants, their affective responses were linked explicitly to receiving helpful feedback from Dr. GEPT.

*Extract 6*

Int: In the first log, you noted that when you first received the score and feedback, you felt excited, encouraged, and more motivated. Can you tell me more about how you were feeling?

P339: I think to have feedback like this is very helpful. It gives you advice based on your weaknesses. It also gives some concrete examples. I think it is very helpful.

*Extract 7*

P400: First of all, I was happy because I passed the test. Secondly, normally, you wouldn't receive feedback like this in this type of test. It's rare to have this kind of feedback telling you what you need to work on further. So that was a bit surprising, in a good way. This feedback let me understand in more detail how I performed in this test.

P400 commented on the rarity of receiving detailed, forward-looking feedback in the context of a high-stakes language test, and how it enabled them to understand their own performance in the test in more detail. In a similar vein, P339 commented on receiving learning advice based on the weaknesses identified being very helpful.

In learning log 1, we asked participants to comment on their perceptions of Dr. GEPT feedback's usefulness. The most recurrent comment, given by 12 out of 14 learning log participants, was that Dr. GEPT provides useful feedback by way of identifying weaker areas that they can target in their further learning. For example:

*Extract 8*

Useful. I can improve my weaknesses according to the feedback provided by Dr. GEPT. This allows me to work on them in my subsequent practice. (P02, learning log 1)

*Extract 9*

It is very useful. It showed me both my strengths and weaknesses in terms of listening and reading. Moreover, it even provided a list of vocabulary I was not yet familiar with. This allows me to keep improving my weaknesses effectively after every test. (P04, learning log 1)

*Extract 10*

Very useful. I can understand my weak spots and the solutions. (P01, learning log 1)

From the reasons coded from learning log 1 (see 1.2b), it can be seen that learners' positive perceptions towards Dr. GEPT lie in its usefulness in informing and shaping further learning by identifying weaker areas for improvement (the "what") and providing advice on ways to improve (the "how"). Such feedback and advice make further learning more focussed (with a sense of direction) and efficient.

## **Theme 2: Goal setting following the GEPT test in February 2022**

In learning log 1 and in the interview in July, we asked participants to tell us any next goals in learning English they had following the GEPT test they took in February 2022, and whether Dr. GEPT was used in setting or acting towards their goals.

The majority of participants in both learning log 1 and the interview reported taking another test as their next goal – some were re-taking GEPT Intermediate where they had not passed the February 2022 test, others were planning to take GEPT Intermediate Speaking and Writing test, GEPT High-Intermediate Listening and Reading test, or a test other than GEPT. Some participants mentioned – retrospectively in the interview – an action plan to increase study effort or the frequency/time for study. Interestingly, in both learning log 1 and interviews, a few participants mentioned specifically working on vocabulary, while other aspects (e.g. the four skills) did not feature specifically as a next learning goal.

Regarding the role of Dr. GEPT in learners' goal-setting, the main ways in which Dr. GEPT feedback played a role, as identified in learning log 1, included working on specific areas (e.g. vocabulary and grammar, listening), and taking learning advice from Dr. GEPT, as illustrated in the extract below:

*Extract 11*

In school, in addition to becoming more familiar with grammar and vocabulary, I also wish to improve my listening. Outside of the school curriculum, I hope to improve my listening by listening to TED talks more often, which will help me get used to an authentic environment, as Dr. GEPT suggested. (P08, learning log 1)

During the interviews, participants provided some more insights on Dr. GEPT's role in setting their learning goals:

*Extract 12*

P234: It allows me to know my weaknesses better so that I can work on them and better my English skills.

*Extract 13*

P298: The statement "Can extrapolate meanings from the context" in the analysis of the reading skills. From here, I can tell that I don't understand articles very well, and so I know I should work on my vocabulary so as to understand articles better.

*Extract 14*

P441: I think it has given me a sense of direction. As for motivation... it's like I finally know where I need to go for my next step... I now have a direction.

*Extract 15*

Int: In your opinion, what role has the Dr. GEPT feedback played in your English learning?

P400: I think it's more about... affirming that I'm going in the right direction. I mean I had my own way which was pretty similar to this, but now looking at this feedback as well...

From Extract 12 and Extract 13, we can once again see how identifying weaknesses help shape participants' next learning goals in terms of areas on which to focus their study efforts. "Direction" was a concept invoked by some participants – that Dr. GEPT gave them a sense of direction (Extract 14) or affirmed their own learning direction (Extract 15).

### **Theme 3: Integration of Dr. GEPT feedback into learning activities**

We asked participants to list in learning logs 2-9 the English learning activities they engage in, and to elaborate on these during the interview. Based on coding both the learning logs data (2.2) and interview data (W05), the following emerged as commonly reported English learning activities:

- Attending cram school – most frequently mentioned in learning logs
- Reviewing lesson materials from school or cram school
- Practising the four skills (e.g. reading aloud for speaking, listening)
- Practising English using resources such as exercises, practice tests
- Memorising vocabulary – frequently mentioned in both learning logs and the interview
- Studying English learning magazines (mainly Studio Classroom)
- Reading English language texts (e.g. novels) or consuming English language media (e.g. listening to songs in English, watching movies, broadcasts, or online streaming programmes in English)

Therefore, we can see that participants engaged in various English learning activities, ranging from taking extra English lessons (cram school) and reviewing lesson materials, doing activities honing a particular aspect of language skill or knowledge, practising English using extra materials (e.g. English learning

magazines, practice tests), to consuming authentic texts and media in English. Of interest and significance would be to see whether and how Dr. GEPT feedback is integrated into these diverse learning activities, which we will look at below.

In learning logs 2-9, we asked participants whether Dr. GEPT was used or referred to when deciding on their English learning activities. The pattern of use varied among participants, but the general patterns noted were:

- Two used it consistently
- Three used it mainly in the first few weeks
- Four used it infrequently
- Two never used it
- Three were indeterminate (less than 4 learning logs submitted)

Participants were asked to comment on whether and how Dr. GEPT was integrated into their English learning activities both in the learning logs and in the interview. Based on coding the relevant learning logs (2.3b-H) and interview data (W06), the analysis identified the following main ways in which learners integrated Dr. GEPT feedback into their learning activities.

### 1) Using learning advice from Dr. GEPT

Using specific pieces of learning advice on study activities, methods, or strategies was most frequently mentioned in the interview. The following shows several illustrative examples.

#### *Extract 16*

P427: The “Advice for improvement” told me to practice listening more in English. I searched VoiceTube online and used it to listen to lessons I'm interested in.

#### *Extract 17*

Int: You mentioned you memorized 20 words a day. Did you use advice G in this learning activity?

P013: Yes, I try to put similar words in a group together first. This is easier for me to memorize them. Next time when I encounter any of these words, maybe I can recall other words from the group as well.

#### *Extract 18*

P339: I watch American talk shows in my spare time. Using this strategy [“cultivate prediction ability”] has enabled me to predict what the speaker is going to say next, and to learn to use the strategy in conversations.

#### *Extract 19*

P400: Like memorizing vocabulary... I used to memorize it from books, not knowing how to pronounce any of it. But gradually, I started to try to read words out. Later, sometimes when I see the Dr. GEPT feedback, it

reminds me to do that. Or like speaking, I used to not speak English very often. But lately, I try to open my mouth and speak English when I think of it.

It can thus be seen that participants, on taking learning advice from Dr. GEPT, engaged in new activities learning or practising English (Extract 16 and Extract 19); changed the way they learn vocabulary by adopting a new strategy to organise and remember new words (Extract 17) and including new dimensions of vocabulary knowledge (Extract 19); and adopted a new strategy that changed the way they deal with real-world spoken English materials and conversations (Extract 18). Taken together, these extracts provide evidence of learners' behavioural and cognitive engagement (Ellis, 2010; Zhang & Hyland, 2018) with Dr. GEPT feedback – how they modified their learning behaviours based on the feedback advice, and, in some cases, adopted new cognitive or metacognitive learning strategies (Oxford, 1990) in their learning activities.

## 2) Focus on weaker areas identified in Dr. GEPT feedback

Participants also reported integrating Dr. GEPT feedback into their English learning activities by means by focusing or practising more on areas identified in the feedback as weaknesses in their learning activities.

### *Extract 20*

P013: This section provides an analysis of numerous strengths and weaknesses, some of which I don't even know myself. But with the feedback, I have an idea of my problems, and therefore, I pay special attention to them when I practice.

### *Extract 21*

P434: I think it's more like a reminder. I've already been doing these activities all along. But Dr. GEPT feedback serves as a reminder that I need to improve a particular aspect.

Int: So you're saying that Dr. GEPT is helpful to you not in how it influences the ways you study, but as a reminder that tells you maybe a certain aspect is your weakness?

P434: Yes.

The feedback provided P013 with new insights into areas needing improvement and directed their attention to these areas when engaging in practices (Extract 20). The utility of Dr. GEPT feedback for P434 (Extract 21), as captured by the Interviewer's clarification question, is less about changing their learning methods or activities, but to focus their attention on particular, weaker, aspects of their English proficiency. The two extracts together demonstrate how Dr. GEPT feedback shaped the participants' learning by focusing their attention on specific areas, and also the participants' cognitive engagement with the feedback – discerning old/new information about their strengths and weaknesses and using it to plan and adjust future learning actions.



It should be noted that when participants talk about areas needing improvement identified by Dr. GEPT feedback, they are not only referring to the section “Analysis of strengths and weaknesses”, but are often including vocabulary and grammar items identified in the “Vocabulary and sentence patterns” section.

*Extract 22*

Dr. GEPT pointed out that I didn't have sufficient vocabulary and grammar knowledge, so I tried to memorize a large amount of vocabulary on a regular basis, and write an essay every week. And I was able to learn about my grammatical errors from the teacher's corrections of my essays. (P01, learning log 3)

*Extract 23*

I followed the Dr. GEPT feedback and worked on vocabulary and grammar I'm not yet familiar with. (P02, learning log 8)

The two participants reported acting on this feedback, engaging both cognitively and behaviourally, addressing these weaker areas by studying these vocabulary and grammar items further.

### 3) Studied vocabulary and sentence patterns in Dr. GEPT feedback

Relatedly, therefore, we identified studying vocabulary and sentence patterns from Dr. GEPT feedback as one of the main ways of integrating the feedback into the participants' learning activities. The following extracts provide more details on how the participants use this feedback.

*Extract 24*

P125: Like I mentioned, I usually find a sentence pattern, and although I may not recognize all of the words there, I try to guess the meanings from the context. And if I'm still not 100% sure what those words mean, I look them up, and try to find out how to use them in a sentence or the prepositions they go with... things like that.

*Extract 25*

Int: You mentioned you used "Vocabulary and sentence patterns" in your learning logs. Can you tell me more about how you used it?

P339: I would look up the words that Dr. GEPT provides me with.

*Extract 26*

Int: In your learning logs, you mentioned you had used the vocabulary and sentence patterns. Can you tell me how you used this part?

P298: I looked at the vocabulary and sentence patterns that Dr. GEPT provided and learned them.

Int: How did you study this part?

P298: I looked at it... sometimes I would write... and sometimes... just memorize it.

Participants reported reading and studying the “Vocabulary and sentence patterns” section, memorising the words and sentence patterns, as well as looking them up for further information such as the usage and collocation patterns of a vocabulary item (Extract 24).

#### **Theme 4: Engagement with individual sections of Dr. GEPT feedback**

More detailed insights into how learners engage with and make use of individual sections of Dr. GEPT feedback (see Section 2.1, Figures 1-4) were gained in the interviews with the participants.

##### 1) Engagement with “Analysis of strengths and weaknesses”

Participants have used this section of Dr. GEPT feedback to identify their weaker areas in reading or listening, which informed their choice of particular learning activities targeted at improving those areas. For example:

###### *Extract 27*

P298: Let me take a look.... the statement "Can extrapolate meanings from the context" in the analysis of the reading skills. From here, I can tell that I don't understand articles very well, and so I know I should work on my vocabulary so as to understand articles better.

Whether the action plan to work on vocabulary so as to understand reading passages better is the appropriate strategy here may be debatable. However, what this response demonstrates is the learner's cognitive engagement with the feedback on strengths and weaknesses, using the feedback information to devise follow-up actions (further learning activities) targeting the weaker areas identified.

Other participants commented on how Dr. GEPT served as a reminder to focus on improving particular areas while engaging in learning activities, as in Extract 20 and Extract 21 above. For participants P434 and P08, the feedback on strengths and weaknesses did not necessarily changed the way they studied, but to pay more attention to specific areas or subskills in their studies or practice.

There was one participant with a near-pass score (P02) who found the “Analysis of strengths and weaknesses” section less useful, as it was not obvious or straightforward to them what they need to improve (or perhaps how to improve).

###### *Extract 28*

P427: Not as useful... I think "Analysis of strengths and weaknesses".

Int: How so?

P427: Because it's not as straightforward in pointing out what I need to improve. So it's not that straightforward to me.

In line with findings from studies about learner engagement with feedback on writing (Cheng & Liu, 2022; Yang & Zhang, 2023), learners' uptake of and engagement with feedback are often mediated by how (much) they understand the feedback.

## 2) Engagement with "Learning advice"

The learning logs data (codes under 2.4) seemed to indicate relatively low levels of engagement with the "Learning advice" section of Dr. GEPT feedback, with many participants reported not having used the learning resources provided and only two reported having used the "Learning advice" section. However, the interviews painted quite a different picture, with several participants elaborating on their meaningful engagement with and uptake of specific pieces of advice. Examples of suggestions adopted include:

### *Extract 29*

P441: Let me take a look... I mentioned the repeat after listening one. So like I said, this one.

Int: Any other advice other than this one?

P441: I did use advice A, the one about TED talks. I downloaded it and listened to it because of this advice. And, English dictionaries... later on, every time when I use a dictionary, I pay particular attention to Cambridge and Oxford dictionaries, instead of just using Google Translate.

### *Extract 30*

P234: I read and listen to English at the same time. When encountering something I don't understand, I go back and keep listening. This way, I can understand it better. As for B... in test scenarios, sometimes, using this strategy allows me to get an idea of what the text is about. I also use some symbols or key words. This allows me to identify and find the answer more clearly in the listening test.

### *Extract 31*

P013: I no longer read and listen [to English] aimlessly. Instead, I started taking notes.

Extract 29 shows how P441 engaged with a new type of authentic English material (TED talks) in their learning, and changed the way they learn new words – using English descriptions/paraphrases rather than relying on translation. Extract 30 and Extract 31 illustrate how P234 and P013 adopted new metacognitive strategies (e.g. taking notes, using symbols or key words) when dealing with listening input.

P013 further elaborated on why they considered "Learning advice" to be the most useful section in Dr. GEPT:

### *Extract 32*

P013: Advice for improvement [is the most useful]. It provides numerous methods that I can use and shows me how to achieve them. I think "how" is very

important here. It is no longer about memorizing all the vocabulary. It would be useless if you simply memorize the words but don't know how to use them, or if you simply listen but have no idea what the point is. Doing that, you miss things you are supposed to pay attention to, which causes you to lose points in the listening test, or you miss what the speakers say, and therefore, your answers are irrelevant to the questions.

Emphasising that “‘how’ is very important”, it can be seen that P013 particularly appreciated the metacognitive strategies Dr. GEPT advised which provided them with useful directions both in encountering English materials and in learning (e.g. new vocabulary items).

Together, these extracts demonstrate participants' positive engagement with specific pieces of advice from Dr. GEPT, which in turn shaped the strategies with which the participants learn English or consume English materials.

Two other patterns characterising the learners' engagement with Dr. GEPT's learning advice are noteworthy. These are illustrated by the four extracts below:

*Extract 33*

P427: Yes. The advice about 5W1H. It's quite helpful when I read articles. My school and cram school teachers also told me that by using this strategy, I can grasp the main idea of an article in a short time.

*Extract 34*

P400: For Advice for improvement... just like I said, it lets me know whether the strategies I am currently using are right or not.

*Extract 35*

Int: How have you been studying English since the February test?

P234: Reading or listening to English media resources or music without Chinese subtitles.

Int: In your learning logs, you mentioned you listened to English media and music. Did you choose these activities because of Dr. GEPT or your own interests?

P234: Both.

*Extract 36*

Int: How have you used this part in your English learning activities?

P339: I watch American talk shows in my spare time. Using this strategy has enabled me to predict what the speaker is going to say next, and to learn to use the strategy in conversations.

Int: So this helps you understand better the content of the talk shows?

P339: Yes

Extract 33 and Extract 34 demonstrate learners' cognitive engagement – using the “Learning advice” section to cross-check their own learning strategies as well as

those advised by teachers from school or cram school. The strategy or advice is more likely taken up when the message is reinforced in different sources, and there is also a sense of these learners' ongoing evaluation and recalibration of their learning strategies.

Extract 35 and Extract 36 illustrate how uptake of a piece of learning advice is more likely when it is aligned with the learner's own interest (e.g. advice on extensive listening through consuming English media programmes or music). In the case of P09, the advice provided a strategy that shaped the way they process spoken English when consuming English media programmes as part of their everyday learning/leisure activities.

Some current limitations are noted here, which could be useful to consider in further developments of Dr. GEPT:

Two participants reported non-uptake of individual pieces of advice, or having to stop acting on the advice, due to the suggested activity or strategy perceived as going beyond their current ability:

*Extract 37*

Int: Have you used the Dr. GEPT feedback when engaging in these learning activities?

P441: Yes, for the first couple times. I remember it is mentioned in the feedback that I can try to repeat right after I listen to a text. I did that the first couple times. But later on, I realized that my English wasn't good enough for me to do that, and so I stopped.

*Extract 38*

Int: We covered the part that you think useful to you. Now, among the three sections in the Dr. GEPT feedback, which part do you think is less useful to you?

P013: Advice J. Honestly, I don't often use resources like BBC. They speak a bit too fast, so I find it difficult to follow what they're saying. The recordings from the magazines are fine. But resources like BBC are too fast.

The learners' non-uptake of specific advice (Extract 38) or the lack of sustained follow-up learning action (Extract 37) might be partly explained by their self-efficacy beliefs. Self-efficacy is defined as "the degree of confidence that one can complete a specific task or meet a chosen goal" (Oxford, 2013, p.4), and is related to agency, "the conviction in one's control over the outcomes to be attained" (Pawlak et al., 2020, p.3). Self-efficacy is argued to have far-reaching consequences on individuals' motivational intensity and engagement in the learning process (Pawlak & Cziser, 2022), and, notably, was invoked by the participants themselves in explaining their non-engagement with specific learning advice.

Another issue noted was that three participants from the learning logs reported being unaware of or having forgotten about the "Learning advice" section, and one further participant from the interview being unaware of Dr. GEPT feedback

altogether. We will discuss, under Theme 7 below and in the conclusion section, an alternative way we suggest in delivering learning advice to learners.

### 3) Engagement with "Vocabulary and sentence patterns"

The following extracts illustrate some of the ways in which participants engaged with the "Vocabulary and sentence patterns" section of Dr. GEPT feedback:

#### *Extract 39*

Int: You mentioned you used "Vocabulary and sentence patterns" in your learning logs. Can you tell me more about how you used it?

P339: I would look up the words that Dr. GEPT provides me with.

#### *Extract 40*

Int: In your learning logs, you mentioned you had used the vocabulary and sentence patterns. Can you tell me how you used this part?

P298: I looked at the vocabulary and sentence patterns that Dr. GEPT provided and learned them.

Int: How did you study this part?

P298: I looked at it... sometimes I would write... and sometimes... just memorize it.

#### *Extract 41*

Int: You mentioned "Vocabulary and sentence patterns" is helpful to you. Can you tell me how you used that part?

P125: Like I mentioned, I usually find a sentence pattern, and although I may not recognize all of the words there, I try to guess the meanings from the context. And if I'm still not 100% sure what those words mean, I look them up, and try to find out how to use them in a sentence or the prepositions they go with... things like that.

It can be seen that the learners might look up the words listed in the section in a dictionary (P01, P09), study or memorise the vocabulary and sentence patterns (P12), and pay attention to aspects of usage and collocations for the vocabulary items (P01).

Participants reported several reasons why they considered this section useful, including the alignment of items listed in the section with the learners' own perceived weaknesses (P01), giving clear and straightforward guidance on what to work on further (P02), and the utility of targeted learning of these unfamiliar vocabulary items in future reading tests (P14).

P441 in Extract 42 below provides further insights into why learners consider it useful to engage with this section.

#### *Extract 42*

P441: Vocabulary and sentence patterns, particularly sentence patterns because it lists all the usages for me. And I did spend time reading them. I had thought

that I already knew these quite well. But the truth was I had not. In addition, it provides example sentences and cute little pictures. I felt like I understood the sentence patterns better after reading that section.

In the case of P125 (Extract 41), the section provided insights that aligned with the learners' own perceptions. However, for P441 (Extract 42), this feedback section brought new insights into and challenged the learner's self-assessment of grammatical knowledge. In addition, P441 highlighted providing sentence examples as a positive feature of this section.

While several participants highlighted the usefulness of the "Vocabulary and sentence pattern" section, P400 considered the "vocabulary" sub-section less useful, as they could not recognise the words listed, and they do not in general tend to spend time memorising vocabulary (contrary to what many other participants reported doing):

*Extract 43*

P400: ... Less important to me is the vocabulary. I don't recognize most of the words listed. I mean, I'm not sure if I can even recognize half of those words. I read articles and guess the meaning from the context for the most part. I don't spend much time memorizing vocabulary so I really don't recognize the words listed... [undecipherable]. It shows me what I need to work harder on. For grammar, I've learned all the concepts up to senior high school, but the thing is I don't always know if I have a problem with a particular grammar point I've studied. So when the feedback listed all my problems... that was very useful to me.

P15's non-uptake of the vocabulary feedback seems to relate to its non-alignment with the participant's own learning habits. This feedback section presents a list of words judged to be not yet mastered by the learner based on their GEPT test performance. However, P400 tends to engage with new vocabulary through extensive reading, and guessing word meaning from the context, but not engaging in deliberate memorisation of vocabulary items. Here, P400 displays an orientation to direct their own learning rather than it being directed by others. Such a different, autonomous *locus of control* is common in informal language learning contexts (Chik, 2020), which engagement with test feedback outside of the school curriculum may well be a part of.

## **Theme 5: Factors affecting learners' longer-term engagement with Dr. GEPT feedback**

Throughout learning logs 2-9, we asked learners to note down any reasons for if they hadn't used Dr. GEPT feedback in their learning activities in the past two weeks. Where we noted a pattern of decreasing or infrequent engagement with Dr. GEPT feedback, we also asked the learners to comment on relevant reasons during the interview.

Based on the codes under 2.3b-R for learning logs and W10 for interviews, three groups of factors have been identified as affecting learners' longer-term engagement with Dr. GEPT:

1. Following plans or methods by learners themselves or others (e.g. cram school)
2. Pressure from school (e.g. studying for exams, other subjects) and other time limitations (e.g. after school activities)
3. Factors related to Dr. GEPT
  - Forgotten about or unaware of Dr. GEPT
  - Did not feel the need to revisit Dr. GEPT

The following extracts from learning logs illustrate how participants followed their own plans to study or learn English:

*Extract 44*

I wanted to see if I could still make progress using my own methods. (P01, learning log 4)

*Extract 45*

I followed the arrangements set by the cram school. (P08, learning log 7)

*Extract 46*

I have my vocabulary book. So I just memorized words in the book rather than checking Dr. GEPT. (P15, learning log 5)

*Extract 47*

Doing activities that I'm interested in and through which I could practice my English listening skills. (P14, learning log 4)

*Extract 48*

Reading novels is a hobby of mine. When reading novels, I focused more on whether I understood the overall plot/meaning. (P06, learning log 4)

Apart from study plans of their own or from cram school, some participants (P234 and P434 in Extract 47 and Extract 48) seemed to prefer informal language learning activities (cf. Chik, 2020) such as extensive reading or listening rather than deliberate study or practice.

The extracts below show that participants may stop engaging with Dr. GEPT feedback when there is pressure from schoolwork or exams, extracurricular activities, or general time limitations.

*Extract 49*

P125: That's because... in February, this year's GSAT took place.... Back then, I had a pretty flexible schedule. I had some personal time outside of school that I could spend preparing for the GEPT. But after this year's GSAT was



over, it was the turn of our year group to prepare for the next GSAT. And so the pressure from school became more intense, and then there were school mock tests as well. That's why I decided to follow my own pace and then school started to set the pace.

*Extract 50*

I had many extracurricular activities that I needed to participate in lately. (P06, learning log 7)

*Extract 51*

No. I didn't have time this week. (P15, learning log 4)

External obstacles such as competing priorities and time limitations were similarly reported in Gearing and Roger (2018) as reasons for motivated learning behaviours to ebb away.

Apart from these two main factors, there is also a group of factors relevant to Dr. GEPT and which can be changed to encourage learners' engagement with the feedback.

*Extract 52*

Int: How often have you used the Dr. GEPT feedback in your English learning activities?

P298: Not very often.

Int: Why is that?

P298: I would forget to log in and check the feedback.

*Extract 53*

Int: I read your learning logs. Was it the case that you didn't really know how to use Dr. GEPT? You have never used it, right?

P341: I tried looking for it, but I still didn't know how to use it.

Int: Have you ever logged into it successfully?

P341: No

Int: So, when you received your score report, there was a QR code that you could scan.

P341: I did scan it. But maybe it was already too late.

Extract 52 shows that P12, while aware of the Dr. GEPT feedback, would forget to log in and revisit the document. P341 reported not knowing how to use Dr. GEPT feedback in their learning logs, and Extract 53 from the interview revealed that they had never successfully accessed the feedback document. The interviewer explained the different sections in the Dr. GEPT feedback to P03, and it became clear that the participant was oblivious to the existence of the feedback service.

*Extract 54*

P341: All these [referring to sections of the feedback document] are included in Dr. GEPT?

Int: Yes, all included. You can log on and/or download the feedback within one month after receiving your score. So, the reason why you never used it is because...?

P341: After I saw my scores, I just put my score report away and never looked at it again. So I didn't realize this service existed.

For a few other learners, they were aware and had engaged with Dr. GEPT feedback at first, but subsequently stopped revisiting the feedback later on:

*Extract 55*

P441: It was for the first couple times. But later on, I was too lazy to use it because the content was always the same, right?

Int: Yes, the content doesn't change. Speaking of this, can you tell me more about why you stopped using it later on?

P441: When I opened the website for the first time, I looked at everything in Dr. GEPT feedback. Then, because I had already looked at everything there, I kind of had an idea of my weaknesses and I also made an effort to work on these weaknesses. But because the content remained the same, I didn't really want to look at it as I already knew my weaknesses.

*Extract 56*

Int: In your learning logs, you mentioned you used Dr. GEPT feedback. But in later logs, it seemed like you had other plans...

P400: Because I felt like I had gotten it after I read the feedback.

Int: Are there any changes that would make you want to use it more often?

P400: Not really. I felt I got the main gist of it, so I stopped checking it.

The comments from P441 and P400 do not suggest that they found Dr. GEPT feedback unhelpful, but neither did they perceive a need to revisit or study it persistently. Both participants indicated that they have understood the main messages (e.g. what their weaker areas were), and there was no longer a need to be told the same again.

Suggestions to promote learners' longer-term engagement with Dr. GEPT feedback will be discussed under Theme 7 and in the Conclusion section.

## **Theme 6: Next English test, test preparation and involvement of Dr. GEPT**

Given that Dr. GEPT provides feedback and learning advice based on learners' test performance, we were interested in finding out whether and how participants would use Dr. GEPT as they prepare for another English test.

According to learning logs 6-9, of the 14 participants, four had taken another English test since the learning logs began, and six had plans to take another test in the following six months: two re-sitting the GEPT Intermediate Listening and Reading

test, three taking the GEPT Intermediate Speaking and Writing test, and one taking the GEPT High-intermediate test.

The interviews provided some insights into Dr. GEPT's involvement in learners' test preparation.

*Extract 57*

Int: Have you used the Dr. GEPT feedback when preparing for the next test?  
[...]

P013: Like I mentioned before, Advice B [should be C]... namely, trying to repeat after listening to a text. So, when someone's speaking, I would try to listen to everything they say and repeat the whole thing myself. And, while I'm repeating, I would try to use grammar correctly and speak without too many pauses.

*Extract 58*

Int: In your learning logs, you mentioned you planned to take the Writing and Speaking test, and then perhaps TOEIC, too, after that. Have you been using, or are you planning to use Dr. GEPT feedback to prepare for the tests?

P234: Yes. Because some of the techniques are very useful in tests. So, I will keep doing what the feedback suggests and apply it in real life.

Int: Like advice A and B [reading while listening; cultivate prediction ability] that you just mentioned?

P234: Yes.

The two extracts above demonstrate that some learners acted on specific pieces of learning advice from Dr. GEPT. P013 used the advice "Repeat after listening to a text" to start preparing for the upcoming speaking test, while P441 integrated two pieces of advice on listening into their preparation for the TOEIC test.

Some of the participants had not been preparing for a test, but expressed an intention to use Dr. GEPT for test preparation in the future:

*Extract 59*

Int: So, based on my explanation of Dr. GEPT, if you were preparing for an English proficiency test, would you use Dr. GEPT feedback to prepare for it?

P341: Yes, because I can know what my weaknesses are and then work on them.

*Extract 60*

Int: If you were preparing for an English test, would you use Dr. GEPT feedback to help you prepare?

P298: I might.

Int: Why do you think you might?

P298: Because if I really don't know how to start preparing, I'll check the feedback here.

*Extract 61*

Int: Let's say if you were done with the GSAT now and were preparing for the GEPT, would you use Dr. GEPT feedback to help you prepare?

P125: Yes, I would.

Int: In what ways do you think Dr. GEPT can you help in your preparation for the GEPT?

P125: Like what I mentioned just now, I think I would benefit from "Vocabulary and sentence patterns" because sometimes it gives me example questions/sentences that I can practice. I also bought some published materials that contain past GEPT tests. So my plan is to check if there's any Dr. GEPT feedback I can refer to each time I finish a unit of the published materials I bought.

Int: If you were preparing for a test other than GEPT now, would you also use Dr. GEPT feedback?

P125: Yes.

As seen from Extract 59 and Extract 60, some participants would use Dr. GEPT to guide their directions in test preparation. P341 would use it to focus their efforts on weaker areas, while P298 would use Dr. GEPT to help determine where to start. According to Extract 61, apart from using the "Vocabulary and sentence patterns" as study material, P125 planned to integrate Dr. GEPT feedback with the use of other test preparation materials to study for the next test. Their response to the last question also suggests that they see the relevance of Dr. GEPT feedback in preparing for English tests other than GEPT.

This points to a key factor for the use or non-use of Dr. GEPT: it depends on the learner's perceptions of its relevance to the next test, which the comments from other participants corroborate:

*Extract 62*

Int: Are you planning to take any English language proficiency tests soon?

P339: Yes. The High-intermediate Listening and Reading test in October.

Int: Will you use Dr. GEPT feedback to prepare for this test?

P339: Yes. I'll use Dr. GEPT feedback more often this time, because it is the same level [Dr. GEPT from a recent failed attempt at the High-Intermediate test]. It'll probably cover a lot of things that will appear.

*Extract 63*

Int: You mentioned that you're planning to take the GEPT Speaking and Writing test in November. Have you been using any of the feedback to help you prepare for the test?

P441: Because I plan to take speaking and writing test next time, I haven't used the Dr. GEPT feedback very much.

Prior to Extract 62, P339 reported only having "a quick look" at the Dr. GEPT feedback from the Intermediate test in preparing for their GEPT High-intermediate test. Now, in preparing for their second attempt at the High-intermediate test, they consider the Dr. GEPT feedback for the same-level test to be highly relevant, particularly the vocabulary and sentence patterns. P441 in Extract 63 reported not

having used the Dr. GEPT feedback in test preparation, and their comment pointed to the same consideration: its relevance to the next test (or lack thereof).

## **Theme 7: Learners' 'wish list' – Suggestions for further development of Dr. GEPT feedback**

Towards the end of the interviews, participants were asked what changes they would like to see in Dr. GEPT feedback, or what changes would encourage them to use Dr. GEPT more often. The following summarises four main suggestions from the interview participants.

### 1) Increasing or enhancing study content

Some participants provided ideas for additional content or ways to enhance existing contents:

*Extract 64*

P125: I think I would love to see more content regarding listening skills because I quite enjoy listening to English materials.

*Extract 65*

P339: I think it's pretty good already. In the vocabulary section, I think the Chinese translation of the words can be added. It would be easier to read. And, this may be asking too much, but I think words/phrases that collocate with the vocabulary can be added, too.

P01's suggestion for more recommended listening content relates to another suggestion below – providing links to further materials such as online videos. P09's suggestion for including collocations for vocabulary items relate to one piece of Dr. GEPT learning advice, whereby learners are encouraged to look up usage and collocations when they encounter new vocabulary items; although the same advice text recommended for learners to learn new words via dictionary definitions/paraphrases rather than relying on translation.

### 2) Further quizzes

Related to increasing or enhancing study content above, some learners also suggested more formative assessment activities – quizzes:

*Extract 66*

P298: Small quizzes. That way, I might use it more often.

*Extract 67*

P441: Maybe there could be a quiz?

Int: you mean adding a quiz component to Dr. GEPT?

P441: Yes. It's like every time you open the website, you can take a quiz, and based on your quiz results, there could be an analysis of your weaknesses

that tells you, for example, that you are weak on using tenses or vocabulary. That would make me want to use Dr. GEPT more often.

P04's comment once again attests to learners' positive engagement with the analysis of strengths and weaknesses in the test feedback, and they suggested extending this to smaller-scale formative assessment activities.

Both learners' suggestions for more formative assessment activities (quizzes) also seem to provide some insights into ways for promoting more sustained engagement from learners.

### 3) Providing links to videos or further materials by Dr. GEPT

The responses from the following two participants suggested a potential for enhancing learners' engagement with Dr. GEPT by providing hyperlinks to additional learning materials:

#### *Extract 68*

P234: I think it would be more convenient if some links can be embedded in Dr. GEPT feedback instead of having to find related information by myself.

Int: You mean providing links you can click on that will bring you to the websites immediately for the resources mentioned in Dr. GEPT feedback?

P234: Yes, because we may not have time to search for the videos, etc.

In the "Learning advice" section, Dr. GEPT recommended for learners to engage in further learning resources or authentic materials (e.g. TED talks). P234 (and P125 in Extract 64) displays a preference for being provided with specific recommended resources (e.g. specific videos to watch).

The following two extracts documented what resources P125 engaged with as well as how they engaged with the material, providing insights into what might work well with learners.

#### *Extract 69*

P125: No I haven't... But I've done something similar to advice C [identifying keywords from the listening text] before.

Int: Did you learn how to do it from Dr. GEPT, or other sources like school?

P125: I think there was a link in Dr. GEPT. I clicked on it and it connected me to some YouTube videos. I was pretty interested in those, so I took a look at them.

#### *Extract 70*

P125: The last post it sent me taught us how to make memorizing vocabulary easier. It gave you a passage with some missing words and a Chinese translation of the passage too. Then you had to come up with the missing words. Or sometimes, it doesn't give you the Chinese translation, and you have to think of what the missing words may be, and once you kind of have an idea about what those missing words are, you can check the answers

and look up the word meanings. I think this method is good for me as it reinforces my memory of the meanings of the words.

Int: Is this something provided for you in addition to the Dr. GEPT feedback?

P125: Yes. I added GEPT as a friend on the Line app. They send me information from time to time.

The detailed accounts in both extracts not only illustrate the learner's preferences (for YouTube links and additional exercises), but provide fairly concrete evidence of their engagement with these resources. Notably, what can also be extrapolated from the responses is the utility of occasional prompting via messenger apps or social media rather than one-off delivery of feedback information. We will discuss this recommendation further in the Conclusion section.

#### 4) Delivering feedback via a mobile app

In line with above is the suggestion for delivering the feedback and learning resources via a mobile app. The following three extracts demonstrates a participant's (P06) preferences about the medium of delivery:

##### *Extract 71*

Int: Are there any changes you'd like to see that would make you want to use it more often?

P434: Is there an app for it? Previously, I used Dr. GEPT on the website. But I actually don't use the website a lot.

##### *Extract 72*

P434: I'm not a big fan of paper-based materials. I have some apps in my phone and I spend about 10 minutes every day memorizing words.

##### *Extract 73*

Int: So it was mainly because you were too busy?

P434: Yes.

Int: So if there were an app for Dr. GEPT, it would also be more convenient for you.

P434: Yes. I have some learning-related apps on my phone already. And if there were an app, I would also use Dr. GEPT more often.

P434 displays a clear preference for mobile apps over paper-based materials or websites. They also reported engaging with some language learning apps currently (Extract 73), which seems to align more with their everyday routine and requires less deliberate effort.

## 6. Discussion & conclusions

In order to offer a better understanding of the potential of Dr. GEPT in the English language learning trajectories of senior high school students in Taiwan, our research focused on two key aspects identified in the previous research: (a) learners' motivation – including its specific types/forms – is likely to interact with their perceptions of feedback, and (b) the vital factor that ultimately determines the effectiveness of feedback is whether and how learners engage with and act upon feedback. Guided by these insights, this sequential mixed-methods study aimed to provide empirical evidence for the local learning context for which Dr. GEPT was designed to be useful. The study first analysed large-scale baseline motivation data using descriptive statistics and SEM analysis, which was followed by a small-scale qualitative analysis to explore in greater detail individual learners' learning journeys. The current study also took a longitudinal perspective in exploring the dynamic relationship between learners' learning journeys and Dr. GEPT feedback, for a period of four months.

### 6.1 Summary and discussion of main findings

#### ***RQ1. What are their motivations to learn English?***

The adolescent learners of English in Taiwan who took part in this study ( $n = 635$ ) indicated a relatively high level of motivation to all components that were explored. Overall, the students viewed their English ability in a positive light. While they find enjoyment in learning English, they do not perceive it as an easy task.

Congruent with previous studies featuring Chinese L2 learners (e.g., You & Chan, 2015; You et al., 2016), this study confirmed that the Taiwanese adolescent learners can visualise their future self-images using English in social, educational and professional domains. However, it seems that their capacity to envision themselves living abroad and using English on a daily basis is limited. This may suggest that for Taiwanese adolescent learners, the English language is primarily viewed as a school subject, or a useful tool serving particular purposes and more immediate needs rather than a language in which they will fully immerse themselves in the future.

The participants also reported that people around them expect them to study English. This echoes Huang and Chen's (2017b) study that emphasised the significance of relational aspects of the self in understanding one's motivational capacity. It is particularly interesting that the adolescent learners of our study tended to feel more pressure from their peers and teachers, compared to the pressure from their parents. This appears to indicate the interplay of complex social orientations



and contextual variables that affect the learners' motivational profiles (Sugita McEown et al., 2017).

The learners' desire to secure a good job and gain admission to a reputable university was reported as powerful motivators for their English language learning. They were also interested in getting to know more about other culture by using the English language. However, their instrumental-promotion motivation did not tend to feature studying abroad, which once again suggests their limited interest in fully immersing themselves in an English-speaking environment. In contrast, strong instrumental-prevention motivation—operationalised by orientation to learn English to avoid failure at school or on English proficiency exams—was reported. Additionally, although the students indicated that they usually work hard and do their best in their English studies, they also agreed that they would exert even greater effort if their exam scores fell below expectations, striving to improve in the next test.

Descriptive statistics on learners' feedback perceptions showed that they prefer to receive information about their specific strengths and weaknesses in their examination performances, and such information was also perceived to help enhance their motivation to learn. The learners also reported their preference to receive specific resources suitable to their level of English. Both components are covered in Dr. GEPT, which provides learners' performance profiles, specifies areas for improvement in terms of lexical and grammatical features, and offers recommended learning resources (Wu, 2021). The mediating role of learning strategy on the relationship between learner motivation and learning outcomes as identified in previous studies (Kormos & Csizér, 2013; Zhang et al., 2017) also supports Dr. GEPT's provision of feedback information and specific support for relevant learning strategies.

While the question items in our survey focused on learners' general feedback perceptions rather than their perceptions towards the specific Dr. GEPT feedback that they received, it is encouraging to find that Taiwanese adolescent learners generally perceive feedback positively. This is in line with Gan's (2020) study with Chinese university students, who also reported a high level of preference for teachers' evaluative feedback (e.g., whether the work was correct or incorrect) and for learning-oriented feedback (e.g., how to improve a certain skill). However, positive feedback perceptions alone should not be assumed to constitute effective feedback. Indeed, Gan's (2020) SEM analysis revealed that while teachers' evaluative feedback played a significant role in facilitating students to act upon the feedback, learning process-oriented feedback did not have a direct impact on feedback use. In other words, learners' feedback preference does not necessarily convert into action.

***RQ2. Do these learners' L2 motivation and general perceptions about assessment feedback interact? If so, how?***

The SEM analysis revealed insights into the interesting and complex relationships between learners' motivation types, English Self-Concept & Learning Experience, and Feedback Perceptions, and Motivated Learning Behaviours.

It is notable that neither Ideal L2 Self nor Ought-to L2 Self had direct impacts on Motivated Learning Behaviour. Both factors indirectly influenced Motivated Learning Behaviour through mediating variables. Ideal L2 Self accounted for 46.3% of Feedback Perceptions and 39.6% of English Self-concept & Learning Experience, both of which then influenced Motivated Learning Behaviour, explaining 32.1% and 43.2% of the variance, respectively. That is, learners with a higher level of Ideal L2 Self tend to perceive feedback more positively and are generally more confident in their English skills. They also tend to enjoy English language learning. Positive feedback perceptions and better learning experience then tend to lead to more motivated learning behaviour.

Ought-to L2 Self accounted for over half (58.8%) of the variance in Instrumental Prevention, which then explained 12.7% of Motivated Learning Behaviour. Ought-to L2 Self also influenced Feedback Perceptions to a small degree (10.9%), which then, together with the indirect impact of Ideal L2 Self, contributed to Motivated Learning Behaviour. This means that learners with a higher level of Ought-to L2 Self feel that they have to study English to avoid negative consequences (e.g., failing in English examinations), which contributes to their Motivated Learning Behaviour to a limited degree. However, unlike Tsao et al.'s (2017) research that identified that learners who suffer from test anxiety appreciated and used feedback, our data did not show any significant influence of the level of Instrumental Prevention on Feedback Perceptions. It is also worth noting that parental encouragement and Ought-to L2 Self showed the weakest correlations with learners' performance outcomes in Dunn and Spiby's (2021) research with Taiwanese grade 9 and 12 learners.

Learners' Feedback Perceptions had a significant impact on Motivated Learning Behaviour, both directly and indirectly. Notably, a substantial portion (31.3%) of the direct impact of Feedback Perceptions on the variance in Motivated Learning behaviour was found. Indirect impact was mediated by English Self-concept & Learning Experience. The finding of Feedback Perceptions impacting English Self-concept & Learning Experience has an interesting contrast with Gan's (2020) study, which demonstrated that students' attitudes towards classroom English learning played a significant role in impacting their classroom feedback experiences and preferences. Whilst the direction of the impact was opposite in our study, this nevertheless supports a strong connection between feedback and learning experience.

As such, a number of factors were positively related to the learners' perceptions of feedback, leading to learners' active learning engagement. All the connections

identified in the SEM analysis of the study clearly suggest the significant potential of Dr. GEPT in facilitating learners' Motivated Learning Behaviour.

### ***RQ3. How do the learners engage with Dr. GEPT feedback?***

Through the analysis of learning logs (14 participants, 9 logs over 4 months) and interviews (10 of the 14 participants, after log 9), we were able to gain insights into different facets of learners' engagement with Dr. GEPT feedback, including their affective responses, integration of feedback into goal-setting, use or non-use of learning resources provided, and the temporality of their engagement. These were also explored partly from the lenses of affective, cognitive, and behavioural dimensions of feedback engagement (cf. Fredrick et al., 2004; Ellis, 2010; Zhang & Hyland, 2018).

Overall, the participants showed positive affective engagement with Dr. GEPT feedback, in terms of their emotional response and their perceptions of Dr. GEPT's usefulness. Negative affective responses were mostly related to the test scores, while participants commented on the usefulness of Dr. GEPT positively in informing and shaping their further learning. An overwhelming majority (12 of 14) of the participants pointed to the utility of Dr. GEPT in identifying weaker areas needing improvement.

The analysis then explored the ways in which Dr. GEPT feedback was integrated into the learners' goal-setting and subsequent learning activities (Themes 2 and 3), the specific ways in which learners engaged with and utilised different sections of Dr. GEPT feedback (Theme 4), and factors affecting their longer-term engagement with the feedback (Theme 5). Some learners set goals or action plans based on the weaknesses identified in Dr. GEPT feedback, and targeted their study efforts on these weaker areas (including weaknesses identified in listening and reading as well as vocabulary and sentence patterns) in their subsequent learning or practice activities. Some took up and acted on specific pieces of Dr. GEPT's learning advice – ranging from adopting new cognitive and metacognitive strategies for processing language input and for studying, utilising new learning resources, to consuming recommended authentic materials (e.g., media programmes). Some learners also used the "Vocabulary and sentence patterns" section as material for deliberate study. These learner actions tap into both the cognitive and behavioural dimensions of feedback engagement, and these actions evidence that the learners took time to attend to and understand the feedback (cognitive engagement, cf. Ellis, 2010), as well as acted on the feedback advice and adjusted their learning behaviours and activities accordingly (behavioural engagement).

The key insights gained from this analysis is that learners' noticing and acceptance of feedback (cognitive engagement) and learning actions following feedback advice (behavioural engagement) tend to be strengthened where there is alignment between the feedback information or advice and the learners' own interests and learning directions. Moreover, reinforced messages from more than one source – such as when the same piece of learning advice has been given by school or cram school teacher and now again by Dr. GEPT – were noticed (i.e., cognitively engaged with) by the learners and seemed to make feedback uptake more likely. On the other

hand, following through with the advice in subsequent learning activities seemed less likely where the learners' self-efficacy was lacking – when they considered it too challenging to act on the feedback.

In terms of the temporality of feedback engagement, the learning logs and interviews both ostensibly suggested more ephemeral than sustained learner engagement with feedback. However, this mainly seemed to mean that learners might not have re-read or revisited Dr. GEPT, but not indicating a negative perception towards the feedback (see Theme 1) or a lack of meaningful learner engagement with the feedback (see Theme 4). The analysis under Theme 5 suggested time limitations and competing priorities facing the learners, reminiscent of the external obstacles contributing to the ebbs and flows of motivated learning behaviour in Gearing and Roger (2018). Other reasons provided, together with the learners' suggestions in Theme 7, provided insights into how feedback can be (re-)packaged and delivered in ways to promote more sustained learner engagement.

#### ***RQ4. What role(s) does Dr. GEPT feedback play in shaping the learners' learning journeys?***

Through analysing learners' goal-setting and learning activities, as well as whether and how Dr. GEPT feedback was integrated into these processes (Themes 2, 3, 4), we gained insights into the role of Dr. GEPT feedback in shaping the learners' learning journey. Three overall themes emerged from the analysis.

##### 1) Shaping learning direction

First, and perhaps most saliently noted by the participants, is that Dr. GEPT feedback made the learning journey more targeted. This was achieved through identifying specific weaknesses needing more focussed effort for improvement, or served as a reminder if the learners had already been aware of these weaknesses. For some learners, the feedback aligned with and therefore affirmed the learners' own learning directions and action plans, but at times also challenged or brought new insights to the learners' self-assessment.

Dr. GEPT shaped the learners' learning journey also by offering a range of learning strategies, "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (Oxford, 1990, p.8). The learning advice section provided an array of strategies for planning and organising learning, as well as cognitive and metacognitive strategies for processing English input in real life (e.g. books, online videos, broadcast programmes). The extracts presented under theme 4 have illustrated how learners engaged with such advice and adopted these strategies.

Interestingly, studies in the learning strategies literature have often investigated differences in strategy use between higher and lower proficiency learners (e.g. Habók et al., 2022). This study has seen uptake of strategies by learners as a result of feedback engagement, which might contribute to their language proficiency development – this is an avenue for further empirical investigation.

## 2) Complementing the feedback from school or cram school

From the learners' accounts in the interviews, there was a sense of Dr. GEPT feedback's distinctiveness from but also complementarity with the advice and feedback learners receive from their school or cram school. The extracts below show some examples of such complementarity:

### *Extract 74*

Int: Since you mentioned cram school, was their advice similar or different from the Dr. GEPT feedback?

P441: I think it was pretty different. In cram school, I'm in a large class. So, there's no way the teacher can provide you with personal and detailed advice. On the other hand, Dr. GEPT can explain each detail to you and give you advice at great length. But in cram school, suppose you mispronounce something, the teacher may simply correct your pronunciation... That's all. But Dr. GEPT can provide me advice for improvement with a greater scope.

### *Extract 75*

P339: In our cram school sessions, we first do a mock test, and then review them together as a class. I think in cram school, we mainly focus on test-taking strategies and practicing question types that appear in exams. But Dr. GEPT feedback is more geared toward real life situations. So, cram school is focused on the GSAT, and Dr. GEPT feedback is focused on application in everyday life.

P441 saw the complementarity of Dr. GEPT to the teacher feedback they receive from cram school, in that Dr. GEPT offers macro feedback (advice, strategies) while their cram school teachers offer micro (corrective) feedback. The learner expressed their appreciation for such feedback advice that is personalised, detailed, and in a broader scope. In P339's view, cram schools focus more on test-taking strategies, whereas Dr. GEPT feedback provided advice on strategies for real-life encounters with English (e.g. media programmes). The learner's view and their engagement with Dr. GEPT's feedback advice in this instance is well-aligned with the LOA design intention of Dr. GEPT feedback.

## 3) Best combined with learner's determination

The following comment from P427 reflects well the interaction between feedback and the learner's own motivation, and their complementary role:

### *Extract 76*

Int: What role do you think Dr. GEPT feedback plays in your learning?

P427: I think you need to push yourself. The feedback Dr. GEPT gives is like a person, whether a teacher or just someone around you, who keeps telling you what you need to work further on. I mean, you could ignore what this

person says. The feedback tells you where you haven't done well. It's up to you whether or not to take Dr. GEPT's recommendations.

P427 was one of the participants who obtained a near-pass score in the test. Notably, they reported feeling *upset* but *motivated* in response to the test score and feedback. Displaying a strong sense of responsibility (for their own performance) and determination to improve throughout the interview, P427 compared Dr. GEPT to a teacher who gives advice and directions. Importantly, they stated that it is then up to the learners themselves whether to take up and act on the advice. P427 shares a lot of similarities to what Yang and Zhang (2023) call skilled self-regulators – learners who would convert negative emotions into activating emotions, and adjust their learning strategies as informed by the feedback. P02's remark highlights once again the importance of learners' engagement with feedback – a theme in this study as well as the feedback literature (e.g. Winstone et al., 2017; Lam, 2021; Zhang & Hyland, 2022).

## 6.2 Implications of the study and recommendations

Having discussed the findings of this study in relation to the four research questions, this final section outlines this study's implications for Dr. GEPT, contribution to the literature, limitations, and some suggestions for future research.

### 6.2.1 Implications for Dr. GEPT

This study was part of a validation effort for the Dr. GEPT feedback service, to explore the impact of such feedback from a high-stakes English test – the first of its kind worldwide – on learners' "post-test" English learning journey.

Overall, the findings support the usefulness of Dr. GEPT to learners in this context. Both the quantitative and qualitative phases of the study found a generally positive perception of Dr. GEPT's usefulness among learners. The results from both phases converged in showing the learners' preference (and appreciation) for receiving feedback about their specific strengths and weaknesses. Certain aspects of the learners' motivation (RQ1 findings) are worth highlighting again.

The learners:

- do not always perceive English language learning as an easy task
- desire to avoid failing the English subject at school or failing English proficiency exams
- reported an intention to exert greater effort if test results were lower than expectations and would strive for improvement (see also Extract 76)

These propensities might mean that these learners are more receptive to test feedback, or that Dr. GEPT's test feedback would meet their needs. It is also encouraging that the present research demonstrated the significant role of feedback in facilitating English learning among adolescent English learners in Taiwan. Learners' perceptions of feedback have both direct and indirect impacts on learners' motivated learning behaviour, and they also positively influence learners'

confidence in their English proficiency and contribute to learners' enjoyable learning experience (RQ2 findings).

Findings from the qualitative phase offered evidence of learners' affective, cognitive and behavioural engagement with Dr. GEPT feedback in positive ways (RQ3 findings). Correspondingly, Dr. GEPT was shown to shape the learners' learning trajectory following the test, by providing or affirming directions and making learning more targeted (through specifying strengths and weaknesses), offering an array of learning strategies (in the Learning advice section), and complementing the guidance given by school or cram school teachers (RQ4 findings). Learners' uptake of such feedback advice and engagement in self-regulated learning is evidenced in the learning logs and interview data discussed under Themes 3 and 4. As such, it is reasonable to conclude that Dr. GEPT does afford the assessment a learning orientation (cf. Gebril, 2021; Turner & Purpura, 2016) as well as promote learner autonomy, in line with the goals set out by LTTC and Taiwan's new curriculum for the 12-year basic education.

### **6.2.2 Recommendations for Dr. GEPT's further development**

The findings of this study also provide insights for further enhancement of Dr. GEPT's personalised feedback service, by way of verifying or suggesting modifications to the existing features of Dr. GEPT for the GEPT Listening and Reading components, and inform how Dr. GEPT for the Writing and Speaking test can be designed.

Integrating findings about the learners' engagement with Dr. GEPT and their "wish list" suggestions from the interviews (see Theme 7), we make the following recommendations that might further promote learners' interest in and engagement with the feedback service:

#### ***1) Feedback and learning advice delivered in instalments***

Both the learning logs and the interview data suggested that learners tended not to revisit the same feedback page over and over again. Some other learners forgot about the feedback page when it was only delivered once along with the test score (despite the possibility for re-access). On the other hand, there were reports of the learners engaging with specific pieces of advice coming through messenger apps (from LTTC but not as part of the existing Dr. GEPT service).

Therefore, we recommend that the Dr. GEPT feedback can be delivered to the learners in 'instalments'. For example, at the time of releasing the test results, Analysis of strengths and weaknesses can be delivered to a learner as part of the score report, together with a small quantity of Learning advice and Vocabulary and sentence patterns. After a month, Dr. GEPT could alert the learner again, delivering two to three more pieces of Learning advice, together with more vocabulary and sentence patterns. Further instalments of learning advice and vocabulary and sentence patterns could be delivered to the learner later on as appropriate. This

may help bring fresh ideas to learners, keep them interested, and promote their continuous engagement with Dr. GEPT.

### **2) Learning advice delivered in multimedia formats through apps or social media**

The learning advice is currently delivered as text, and with around 10 pieces of advice, the current Learning advice section may contain a large amount of text. Some learners reported engaging positively with media (audio or video content). As such, we suggest presenting some of the learning advice in the form of short video clips – perhaps particularly apt for pieces of advice related to speaking and listening. Where these short videos are delivered through notifications in a learning app or social media at intervals – it might help promote learners’ longer-term engagement with the advice as well as Dr. GEPT in general.

### **3) Small quizzes**

Finally, some learners displayed a positive orientation to formative assessments – small quizzes to be provided to them from time to time, and with feedback on strengths and weaknesses if possible. In line with recommendations 1 and 2, this may encourage learners’ regular and active engagement with Dr. GEPT.

## **6.2.3 Contribution to research**

This study was underpinned by theoretical and empirical work on feedback, LOA, and L2 learning motivation. It contributes to filling the gaps in research a) on the relationships between motivation and assessment/feedback and b) on the L2 motivation among learners in compulsory (secondary) education.

Moreover, this study contributes to the growing body of research on feedback engagement. Existing research on feedback engagement has mainly focused on learners’ engagement with corrective feedback (see Ellis, 2010) or feedback on L2 writing within teaching contexts (Cheng & Liu, 2022; Zhang & Hyland, 2018; 2022; Yang & Zhang, 2023). With Dr. GEPT being a pioneer in feedback on a high-stakes test, and providing a variety of feedback information, including strengths and weaknesses, forward-looking learning advice (e.g. cognitive and metacognitive strategies), and vocabulary and sentence patterns the learners are yet to be familiar with, this study extends the scope of investigation and bring fresh insights into learners’ affective, cognitive and behavioural engagement with this extended range of feedback information, within an assessment context.

## **6.2.4 Limitations and future research**

A note should be made about the participant sample of this study. As noted in Section 5, the participants in Phase 1 (survey) had a higher pass rate (63.5%) than the overall GEPT Intermediate Listening and Reading test-taker population in 2020-2022 (52%). Moreover, five of the 14 participants in Phase 2 (learning logs and interview) obtained scores higher than 180. The score distribution suggests that a



majority of the participants of this study were high achievers, who might in turn display more positive attitudes towards Dr. GEPT. We acknowledge this as a limitation potentially affecting the generalisability of the findings.

Due acknowledgement should also be made about the small sample size for the longitudinal qualitative component of this study. This was to enable more in-depth exploration of how learners engage with Dr. GEPT feedback, including the different forms / sections of feedback information. We also only had a small number of near-pass participants volunteering for Phase 2 (three out of 14). Future studies with a larger number of lower-scoring participants (scoring below 120) may be illuminating about the role Dr. GEPT plays in helping near-pass test-takers prepare for re-sits of the test.

Some aspects of longer-term *engagement* with the feedback remain opaque in the current data. Specifically, the retention and adoption of specific learning advice from Dr. GEPT, whether and how sustained the use of such new strategies was is invisible from the learning logs, as learners were only asked whether they “used” or visited Dr. GEPT feedback. Although several learners indicated that they did not re-visit the Dr. GEPT feedback page, it did not necessarily mean that pieces of learning advice were not acted upon. This can be further considered in designing instruments and planning data collection in relevant future studies.

In the future, more longitudinal investigations about the role of feedback and feedback engagement in learners’ self-regulation (or the interaction between feedback engagement and self-regulated learning (cf. Yang and Zhang, 2023) could be fruitful. In relation to our recommendations for Dr. GEPT’s further development, it would be interesting for future studies to investigate potential effects of feedback delivery mode (text vs. multimedia), and the potential efficacy of delivery in instalments vs. one-off delivery.

## 7. References

- Arbuckle, J. L. (2014). IBM SPSS Amos 23 user's guide. *Amos development corporation*, SPSS Inc, 226-229.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*, 88(3), 588.
- Boo, Z., Dörnyei, Z., & Ryan, S. (2015). L2 motivation research 2005–2014: Understanding a publication surge and a changing landscape. *System* 55: 145–157.
- Boud, D. & Molloy, E. (2013). What is the problem with feedback? In D. Boud, & E. Molloy, (Eds.), *Feedback in higher and professional education* (1–10). Routledge.
- Brown, G. T. L., Peterson, E. R., & Yao, E. S. (2016). Student conceptions of feedback: Impact on self-regulation, self-efficacy, and academic achievement. *British Journal of Educational Psychology*, 86(4), 606–629.
- Brunfaut, T. and Harding, L. (2014) 'Linking the GEPT Listening Test to the Common European Framework of Reference' Research Report, RG-05. <https://www.lttc.ntu.edu.tw/lttc-gept-grants/RReport/RG05.pdf>
- Carless, D. (2007). Learning-oriented assessment: conceptual bases and practical implications. *Innovations in education and teaching international*, 44(1), 57-66.
- Carless, D. (2015). Exploring learning-oriented assessment processes. *Higher Education*, 69(6), 963-976.
- Carless, D., & Boud, D. (2018). The development of student feedback literacy: Enabling uptake of feedback. *Assessment & Evaluation in Higher Education*, 43(8), 1315–1325. <https://doi.org/10.1080/02602938.2018.1463354>
- Chapelle, C. A., Cotos, E., & Lee, J. (2015). Validity arguments for diagnostic assessment using automated writing evaluation. *Language testing*, 32(3), 385-405.
- Cheng, X., & Liu, Y. (2022). Student engagement with teacher written feedback: Insights from low-proficiency and high-proficiency L2 learners. *System*, 109, 102880. <https://doi.org/10.1016/j.system.2022.102880>
- Chik, A. (2020). Motivation and informal language learning. In R. W. Sadler & M. Dressman (Eds.), *The handbook of informal language learning* (pp. 13-26). Wiley-Blackwell.
- Collett, J. M. (2014). *Negotiating an identity to achieve in English: Investigating the linguistic identities of young language learners* (Doctoral dissertation). University of Berkeley.

- Council of Europe (CEFR) (2001). *Common European Framework of Reference for Languages: Learning, Teaching, Assessment*. Cambridge University Press.
- Csizér, K., & Dörnyei, Z. (2005a). The internal structure of language learning motivation and its relationship with language choice and learning effort. *The modern language journal*, 89(1), 19-36.
- Csizér, K., & Dörnyei, Z. (2005b). Language learners' motivational profiles and their motivated learning behavior. *Language learning*, 55(4), 613-659.
- Csizér, K., & Kormos, J. (2009). Learning experiences, selves and motivated learning behaviour: A comparative analysis of structural models for Hungarian secondary and university learners of English. *Motivation, language identity and the L2 self*, 36, 98-119.
- De Kleijn, R. A. M., Mainhard, M. T., Meijer, P. C., Brekelmans, M., & Pilot, A. (2013). Master's thesis projects: Student perceptions of supervisor feedback. *Assessment and Evaluation in Higher Education*, 38(8), 1012–1026.
- Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Mahwah.
- Dörnyei, Z. (2009). The L2 motivational self system. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 9–42). Bristol: Multilingual Matters.
- Dörnyei, Z. (2019). Towards a better understanding of the L2 Learning Experience, the Cinderella of the L2 Motivational Self System. *Studies in Second Language Learning and Teaching*, 9(1), 19-30.
- Dunn, K., & Iwaniec, J. (2022). Exploring the relationship between second language learning motivation and proficiency: A latent profiling approach. *Studies in Second Language Acquisition*, 44(4), 967-997.
- Dunn, K., & Spiby, R. (2021). *Language learning motivations in high school: An investigation of differences between grade 9 and grade 12 students*. Oral presentation. Language Testing Forum 2021. Lancaster University (Virtual conference), UK.
- Ellis, R. (2010). A framework for investigating oral and written corrective feedback. *Studies in Second Language Acquisition*, 32(2), 335–349. <https://doi.org/10.1017/S0272263109990544>
- Fan, J., Knoch, U., & Chen, I. (2021). Linking the GEPT Writing Subtest (Part 1) to the Common European Framework of Reference (CEFR). LTTC–GEPT Research Reports. <https://www.lttc.ntu.edu.tw/files/20221018103245815.pdf>

- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109. <https://doi.org/10.3102/00346543074001059>
- Gan, Z. (2020). How learning motivation influences feedback experience and preference in Chinese university EFL students. *Frontiers in Psychology, 11*, 496.
- Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second-language learning*. Rowley, MA: Newbury House.
- Gearing, N., & Roger, P. (2018). Ebbs and flows: A longitudinal study of an English language instructor's motivation to learn Korean. *Journal of Language, Identity & Education, 17*(5), 292-305. <https://doi.org/10.1080/15348458.2018.1465343>
- Gebril, A. (Ed.) (2021). *Learning-oriented language assessment: Putting theory into practice*. New York: Routledge.
- Gibbs, G., & Simpson, C. (2003). Measuring the response of students to assessment: The assessment experience questionnaire. In *Paper Presented at the 11th Improving Student Learning Symposium*.
- Green, A.B. (2021). *Exploring language assessment and testing: Language in action* (2<sup>nd</sup> Edition). Routledge.
- Green, A., & Inoue, C., (2017). Relating GEPT speaking tests to the CEFR. LTTC-GEPT Research Report No. RG-09. <https://www.ltcc.ntu.edu.tw/files/20221018103435166.pdf>
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (Vol. 6).
- Habók, A., Magyar, A., & Molnár, G. (2022). English as a foreign language learners' strategy awareness across proficiency levels from the perspective of self-regulated learning metafactors. *Frontiers in Psychology, 13*, 1019561-1019561. <https://doi.org/10.3389/fpsyg.2022.1019561>
- Hooper, D., Coughlan, J. and Mullen, M. R. (2008) Structural Equation Modelling: Guidelines for Determining Model Fit. *The Electronic Journal of Business Research Methods* 6(1) 2008, 53-60
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal, 6*(1), 1-55.
- Huang, H. T., & Chen, I. L. (2017a). L2 selves in motivation to learn English as a foreign language: The case of Taiwanese adolescents. M. Apple, D. da Silva, & T. Fellner (Eds.) *L2 Selves and motivations in Asian contexts* (pp. 51-69). Multilingual Matters

- Huang, H. T., & Chen, I. L. (2017b). Understanding Taiwanese adolescents' English learning selves through parental expectations. *Journal of Asia TEFL*, 14(2), 244.
- Huang, S. C. (2019). Learning experience reigns—Taiwanese learners' motivation in learning eight additional languages as compared to English. *Journal of Multilingual and Multicultural Development*, 40(7), 576-589.
- Islam, M., Lamb, M., & Chambers, G. N. (2013). The L2 Motivational Self System and National Interest: A Pakistani perspective. *System*, 41, 231-244.
- Iwaniec, J., & Dunn, K. J. (2021) Measuring motivation. In P. Winke & T. Brunfaut (Eds.), *The Routledge handbook of second language acquisition and language testing* (pp.157-166). Routledge.
- Jiaying, Z. (2016). A comparison of the L2 motivational self system between Chinese EFL and ESL learners. *Chinese Journal of Applied Linguistics*, 39(3), 269-287.
- Jones, N., & Saville, N. (2016). *Learning oriented assessment: A systemic approach*. Studies in Language Testing volume 45. UCLES/Cambridge University Press.
- Kim, A-Y., & Kim, H. J. (2017). The effectiveness of instructor feedback for learning-oriented language assessment: Using an integrated reading-to-write task for English for academic purposes. *Assessing Writing*, 32(1), 57–71. <https://doi.org/10.1016/j.asw.2016.12.001>
- King, P. E., Schrod, P., & Weisel, J. J. (2009). The instructional feedback orientation scale: Conceptualizing and validating a new measure for assessing perceptions of instructional feedback. *Communication Education*, 58(2), 235–261.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling*. Guilford Press.
- Knoch, U., & Frost, K. (2016). Linking the GEPT writing sub-test to the Common European Framework of Reference (CEFR). *LTTC-GEPT Research Report No. RG-08*. <https://www.lttc.ntu.edu.tw/files/20221018103502557.pdf>
- Kormos, J., & Csizér, K. (2008). Age-related differences in the motivation of learning English as a foreign language: Attitudes, selves, and motivated learning behavior. *Language Learning*, 58(2), 327e355. <https://doi.org/10.1111/j.1467-9922.2008.00443.x>
- Kormos, J., Csizér, K., & Iwaniec, J. (2014). A mixed-method study of language-learning motivation and intercultural contact of international students. *Journal of Multilingual and Multicultural Development*, 35(2), 151-166.
- Lam, D. M. K. (2019). Enhancing learning-oriented feedback for Cambridge English: First paired interactions. *Research Notes*, 75, 1–25. <https://www.cambridgeenglish.org/Images/555679-research-notes-75.pdf>

- Lam, D. M. K. (2021). Feedback as a learning-oriented assessment practice: Principles, opportunities, and challenges. In A. Gebril (Ed.), *Learning-oriented language assessment: Putting theory into practice* (pp.86–107). Routledge.
- Lamb, M. (2012). A self system perspective on young adolescents' motivation to learn English in urban and rural settings. *Language learning*, 62(4), 997–1023.
- Li, Q. (2014). Differences in the motivation of Chinese learners of English in a foreign and second language context. *System*, 42, 451-461.
- Liao, R. J. (2021). Advancing the international recognition of the locally-produced GEPT: An interview with Jessica Wu. *Language Assessment Quarterly*, 18(4), 446-455.
- Linderbaum, B. A., & Levy, P. E. (2010). The development and validation of the Feedback Orientation Scale (FOS). *Journal of Management*, 36(6), 1372–1405.
- Lizzio, A., & Wilson, K. (2008). Feedback on assessment: Students' perceptions of quality and effectiveness. *Assessment and Evaluation in Higher Education*, 33(3), 263–275.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological methods*, 1(2), 130.
- May, L., Nakatsuhara, F., Lam, D., & Galaczi, E. (2020). Developing tools for learning oriented assessment of interactional competence: Bridging theory and practice. *Language Testing*, 37(2), 165–188. <https://doi.org/10.1177/0265532219879044>
- Mežek, Š., McGrath, L., Negretti, R., & Berggren, J. (2022). Scaffolding L2 academic reading and self-regulation through task and feedback. *TESOL Quarterly*, 56(1), 41-67.
- Mayordomo, R. M., Espasa, A., Guasch, T., & Martínez-Melo, M. (2022). Perception of online feedback and its impact on cognitive and emotional engagement with feedback. *Education and Information Technologies*, 27(6), 7947-7971.
- Otnes, H., & Solheim, R. (2019). Acts of responding: Teachers' written comments and students' text revisions. *Assessment in Education: Principles, Policy & Practice*. <https://doi.org/10.1080/0969594X.2019.1595524>
- Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. Heinle & Heinle.
- Oxford, R. L. (2013). Individual differences. In P. Robinson (Ed.), *The Routledge encyclopedia of second language acquisition* (pp. 302–308). Routledge.

- Papi, M. & Hiver, P. (2020). Language learning motivation as a complex dynamic system: A global perspective of truth, control, and value. *Modern Language Journal*, 104(1), 204-232. <https://doi.org/10.1111/modl.12624>
- Papi, M. (2010). The L2 motivational self system, L2 anxiety, and motivated behavior: A structural equation modeling approach. *System*, 38(3), 467-479.
- Pawlak, M., & Csizér, K. (2022). The impact of self-regulatory strategy use on self-efficacy beliefs and motivated learning behavior in study abroad contexts: The case of university students in Italy, Poland and Turkey. *System*, 105, 102735. <https://doi.org/10.1016/j.system.2022.102735>
- Pawlak, M., Csizér, K., & Soto, A. (2020). Interrelationships of motivation, self-efficacy and self-regulatory strategy use: An investigation into study abroad experiences. *System*, 93, 102300. <https://doi.org/10.1016/j.system.2020.102300>
- Saito, K., Dewaele, J-M., Abe, M. & In'nami, Y. (2018) Motivation, emotion, learning experience, and second language comprehensibility development in classroom settings: A cross-sectional and longitudinal study. *Language Learning*, 68(3), 709-743. <https://doi.org/10.1111/lang.12297>
- Steelman, L. A., Levy, P. E., & Snell, A. F. (2004). The feedback environment scale: Construct definition, measurement, and validation. *Educational and Psychological Measurement*, 64(1), 165–184.
- Steen-Utheim, A., & Hopfenbeck, T. N. (2019). To do or not to do with feedback. A study of undergraduate students' engagement and use of feedback within a portfolio assessment design. *Assessment & Evaluation in Higher Education*, 44(1), 80–96. <https://doi.org/10.1080/02602938.2018.1476669>
- Strijbos, J. W., Narciss, S., & Dünnebier, K. (2010). Peer feedback content and sender's competence level in academic writing revision tasks: Are they critical for feedback perceptions and efficiency? *Learning and Instruction*, 20(4), 291–303. <https://doi.org/10.1016/j.learninstruc.2009.08.008>.
- Strijbos, J. W., Pat-El, R., & Narciss, S. (2021). Structural validity and invariance of the feedback perceptions questionnaire. *Studies in Educational Evaluation*, 68, 100980.
- Sugita McEown, M., Sawaki, Y., & Harada, T. (2017). Foreign language learning motivation in the Japanese context: Social and political influences on self. *The Modern Language Journal*, 101(3), 533-547.
- Taguchi, T., Magid., M., & Papi., M. (2009). The L2 motivational self-system among Japanese, Chinese and Iranian learners of English: A comparative study. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp.66-98). Multilingual Matters.

- Taylor, F., Busse, V., Gagova, L., Marsden, E., & Roosken, B. (2013). *Identity in foreign language learning and teaching: Why listening to our students' and teachers' voices really matters*. British Council.
- Teimouri, Y. (2017). L2 selves, emotions, and motivated behaviors. *Studies in Second Language Acquisition*, 39(4), 681-703.
- Tsao, J. J. (2021). Effects of EFL learners' L2 writing self-efficacy on engagement with written corrective feedback. *The Asia-Pacific Education Researcher*, 30(6), 575-584.
- Tsao, J. J., Tseng, W. T., & Wang, C. (2017). The effects of writing anxiety and motivation on EFL college students' self-evaluative judgments of corrective feedback. *Psychological reports*, 120(2), 219-241.
- Turner, C. E., & Purpura, J. E. (2016). Learning-oriented assessment in the classroom. In D. Tsagari & J. Banerjee (Eds.), *Handbook of second language assessment* (pp.255-273). Boston, MA: DeGruyter Mouton.
- Wei, X., & Xu, Q. (2021). Predictors of willingness to communicate in a second language (L2 WTC): Toward an integrated L2 WTC model from the socio-psychological perspective. *Foreign Language Annals*, 55(1), 258-282.
- Wheaton, B., Muthen, B., Alwin, D. F., & Summers, G. F. (1977). Assessing reliability and stability in panel models. In D. R. Heise (Ed.), *Sociological methodology* (pp.84-136). San Francisco: Jossey-Bass.
- Winstone, N. E., Nash, R. A., Parker, M., & Rowntree, J. (2017). Supporting learners' agentic engagement with feedback: A systematic review and a taxonomy of recipience processes. *Educational Psychologist*, 52(1), 17-37. <https://doi.org/10.1080/00461520.2016.1207538>
- Wu, J. (2021, April 28-30). *Exploring learning oriented assessment in standardized testing: The case of Dr. GEPT* [Paper presentation]. The 1<sup>st</sup> International Digital Symposium of the Association of Language Testers in Europe.
- Wu, R. Y. F. (2014). *Validating second language reading examinations: Establishing the validity of reading test through alignment with the Common European Framework of Reference*. *Studies in Language Testing*, 41. Cambridge University Press
- Wu, J. R. W., & Wu, R. Y. F. (2010). Relating the GEPT reading comprehension tests to the CEFR. In W. Martyniuk (Ed.) *Aligning Tests with the CEFR*. *Studies in Language Testing*, 33 (pp.204-224). Cambridge University Press.
- Xiao, Y. (2017). Formative assessment in a test-dominated context: How test practice can become more productive. *Language Assessment Quarterly*, 14(4), 295–311. <https://doi.org/10.1080/15434303.2017.1347789>



- Yang, L. F., & Zhang, L. J. (2023). Self-regulation and student engagement with feedback: The case of Chinese EFL student writers. *Journal of English for Academic Purposes*. <https://doi.org/10.1016/j.jeap.2023.101226>
- You, C. J., & Chan, L. (2015). The dynamics of L2 imagery in future motivational self guides. In Z. Dörnyei, P. MacIntyre, & A. Henry (Eds.). *Motivational dynamics in language learning* (pp. 397–418). Multilingual Matters.
- You, C., Dörnyei, Z., & Csizér, K. (2016). Motivation, vision, and gender: A survey of learners of English in China. *Language Learning*, 66(1), 94-123.
- Zhang, Z., & Hyland, K. (2018). Student engagement with teacher and automated feedback on L2 writing. *Assessing Writing*, 36, 90–102. <https://doi.org/10.1016/j.asw.2018.02.004>
- Zhang, Z., & Hyland, K. (2022). Fostering student engagement with feedback: An integrated approach. *Assessing Writing*, 51, 100586. <https://doi.org/10.1016/j.asw.2021.100586>
- Zhang, Y., Lin, C.-H., Zhang, D., & Choi, Y. (2017). Motivation, strategy, and English as a foreign language vocabulary learning: A structural equation modelling study. *British Journal of Educational Psychology*. 87(1) 57-74. <http://dx.doi.org/10.1111/bjep.12135>.

## 8 Appendix

### Appendix A: Comparison of geographic locations between survey respondents and GEPT intermediate level test-takers (2022)

Location	Frequency	Percent	Location	Frequency	Percent		CRELLA	GEPT 2022年年報(中級)	
						Location	Frequency	Percent	Percent
Taipei City	166	26.1	Hsinchu County	11	1.7	北部	279	43.9	45
Kaohsiung City	138	21.7	Hsinchu City	9	1.4	中部	147	23.1	31
Taichung City	72	11.3	Taitung County	6	0.9	南部	190	29.9	20
New Taipei City	42	6.6	Hualien County	6	0.9	東部及離島	17	2.6	4
Taoyuan City	36	5.7	Chiayi County	4	0.6				
Changhua County	35	5.5	Keelung City	3	0.5				
Tainan City	28	4.4	No response	2	0.3				
Pingtung County	24	3.8	Yilan County	2	0.3				
Yunlin County	18	2.8	Penghu County	2	0.3				
Chiayi City	17	2.7	Nantou County	1	0.2				
Miaoli County	12	1.9	Kinmen County	1	0.2				

Yellow = northern area, Green = central area, Blue = southern area, Pink = eastern area and Irelands

## Appendix B: English Language Learning Questionnaire (Translated in Mandarin Chinese)

### Section A: About yourself

- A1. Name [ ]
- A2. Gender [ male · female · prefer not to say ]
- A3. Name of your senior high school [ ]
- A4. School year [Year 1 · Year 2 · Year 3]
- A5. Have you taken GEPT before? [ Yes · No ]
- If Yes, please provide information on your most recent GEPT exam:
- Level [ Elementary · Intermediate · High-intermediate · Advanced ]
  - Skills [ Reading & Listening · All 4 skills ]
  - When did you take the exam? Month [ ] Year [ ]
  - Results [ Pass · Fail ]

### English learning inside school

- A6. How many English lessons per week do you have at school? [ ] lessons
- A7. Please rank order the following skills according to the amount of time you spend in your English classes at school. Please write down 1 (most time) - 5 (least time).
- Reading [ ]
  - Listening [ ]
  - Speaking [ ]
  - Writing [ ]
  - Vocabulary & Grammar [ ]

### English outside school

- A8. How many hours per week do you spend on the following activities?  
(If you do not do any of the activities, please write down '0' for the number of hours)
- A8\_1. Study for your school English classes (e.g. preparation, revision, homework) [ ] hours
- A8\_2. Study for standardised English examinations by yourself (e.g. GEPT, GSAT, TOEIC) [ ] hours
- A8\_3. Attend cram school and/or have private one-on-one English tuition [ ] hours
- A8\_4. Use English for leisure (e.g. reading English books, browsing English websites, watching YouTube in English, listening to English songs)? [ ] hours
- A9. Does any of your family members use English for work or leisure? [ Yes · No ]

### Section B: Motivation

Please circle the option (1 – 6) that applies to you.

[Each question below was accompanied by the scale of (1.strongly disagree, 2. disagree, 3. Slightly disagree, 4. Slightly agree, 5. Agree, 6. Strongly agree).]

- B1.1.** I can imagine myself in the future as someone who is able to speak English.
- B1.2.** I can imagine a situation in the future where I am speaking English with international friends or colleagues.
- B1.3.** I can imagine myself living abroad and using English to communicate in daily life.
- B1.4.** Whenever I think of my future career, I imagine myself using English.
- B1.5.** I can imagine myself studying in a university where my courses are taught in English.
- B2.1.** Learning English is necessary because people surrounding me expect me to do so.
- B2.2.** My parents believe that I must study English to be an educated person.
- B2.3.** I have to learn English, because if I do not, my parents will be disappointed with me.
- B2.4.** I study English because close friends of mine think it is important.
- B2.5.** I study English because my teachers think it is important.
- B3.1.** Studying English is important to me because it will be useful for getting a good job.
- B3.2.** Studying English is important to me because it will be useful for getting into a good university.
- B3.3.** Studying English is important to me because I am planning to study abroad.
- B3.4.** Studying English is important to me in order to gain others' respect.
- B3.5.** Studying English is important to me in order to know more about other cultures.
- B4.1.** I have to learn English because I don't want to fail the English subject in high school.
- B4.2.** I have to learn English because without passing the English subject I cannot graduate.
- B4.3.** Studying English is necessary for me because I don't want to get a poor score or a fail mark in English proficiency exams (e.g. GEPT).

### **Section C: Learning behaviour, experience & self-concept**

*Please circle the option (1 – 6) that applies to you.*

*[Each question below was accompanied by the scale of (1.strongly disagree, 2. disagree, 3. Slightly disagree, 4. Slightly agree, 5. Agree, 6. Strongly agree).]*

- C1.1.** I work hard at studying English.
- C1.2.** I'm doing my best to study English
- C1.3.** I spend lots of time studying English.
- C1.4.** When my English Exam score is lower than expected, I work hard to study for the next.
- C2.1.** I look forward to my English classes.
- C2.2.** I really enjoy learning English.
- C2.3.** I usually get good marks in English.
- C2.4.** Compared to other students, I'm good at English.
- C2.5.** Studying English comes easy to me.

### **Section D: Feedback perceptions**

*Please circle the option (1 – 6) that applies to you.*

*[Each question below was accompanied by the scale of (1.strongly disagree, 2. disagree, 3. Slightly disagree, 4. Slightly agree, 5. Agree, 6. Strongly agree).]*

- D1.** Exam scores/grades are more important than the feedback comments about my performance.
- D2.** I can learn more if I receive feedback comments on my exams.
- D3.** I like to know specific strengths and weaknesses of my performance in an exam.
- D4.** I use feedback comments to review how I have done in an exam.
- D5.** I pay careful attention to feedback.

- D6.** I like specific resources suitable to my level of English to be provided to me (e.g. website resources, English learning programme/activity).
- D7.** Getting to know my strengths (e.g. 'Well done! You're good at X') motivates me to work harder in learning English.
- D8.** Getting to know my weaknesses (e.g. 'You need to improve on X') motivates me to work harder in learning English.
- D9.** If feedback comments point out my mistakes, I feel frustrated.
- D10.** I believe that I have the ability to make use of feedback effectively.
- D11.** It is my responsibility to apply feedback to improve my performance.
- D12.** I use feedback comments on an exam to improve my English in general.
- D13:** I use feedback comments on one exam to determine how I prepare for the next exam.

### **Section E: further participation**

Would you be willing to participate in follow-up activities (e.g. learning checklist every 2 weeks from March to June + one short interview)? [ Yes • No ]

## Appendix C: Learning log 1 (Translated in Mandarin Chinese)

Name:

Date:

<b>Q1. When I have first received test scores and Dr. GEPT feedback, I felt _____.</b> <b>Please tick all that apply.</b>
<input type="checkbox"/> Excited <input type="checkbox"/> Satisfied <input type="checkbox"/> Encouraged <input type="checkbox"/> More confident <input type="checkbox"/> More motivated
<input type="checkbox"/> Upset <input type="checkbox"/> Frustrated <input type="checkbox"/> Discouraged <input type="checkbox"/> Less confident <input type="checkbox"/> Less motivated <input type="checkbox"/> Other (please specify: _____ )
<b>Q2a. When you have first received Dr. GEPT feedback on the test, how useful did you find it?</b>
1. Not useful at all   2. Not useful   3. Not very useful   4. A bit useful   5. Useful   6. Very useful
<b>Q2b. Please explain why? What did you find useful or not useful?</b>
<i>(e.g. It is useful to know that I need to improve on ... , I need to practise ...; It is not useful because I didn't understand the feedback; I did not know what to do next)</i>
<b>Q3a. Do you have any plans on how you will use the feedback and recommended resources?</b>
<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>Q3b. If YES, please describe your plans.</b>
<i>(e.g. In the next X weeks, I'm planning to focus on ...; I plan to use yyy when studying zzz)</i>
<b>Q4. What is/are your next goal(s) in learning English? [Leave blank if you don't have one]</b>
<i>(e.g. I will study/revise .... by the end of month X; I'm planning to take the yyy English test in month Y)</i>

## Appendix D: Learning log 2-9 template (Translated in Mandarin Chinese)

*[Note: with additional questions for Learning logs 6-9]*

Name:

Date:

Please tell us what you have done **in the past 2 weeks**.

**Q1. In the past two weeks, I spent \_\_\_\_\_ hours IN TOTAL learning English outside school.**

**Q2. In the past two weeks, what English learning activities did you do outside school? And how often?**

*(e.g. self-studies to prepare for the xxx English test every other day; attending an English cram school twice a week; self-studies to revise English lessons I learnt at school everyday; watching 2 English movies last weekend)*

**Q3a. In the past two weeks, did you use the Dr. GEPT feedback to decide on any of the learning activities described in Q2?**

YES     NO

**Q3b. If YES, please describe how the Dr. GEPT feedback made you decide on your learning activities. If NO, why not?**

*(e.g. I followed the Dr. GEPT feedback to focus on x; Because the Dr. GEPT feedback suggested that I should improve xxx, I decided to work on yyy)*

**Q4. In the past two weeks, did you use the learning resources (key vocabulary & sentence patterns, learning advice) provided by Dr. GEPT? If so, what did you use? [It is completely fine if you didn't]**

*(e.g. I used xxx from Dr. GEPT to improve yyy when I was doing zzz)*

**Q5. Please rate the extent to which you agree/disagree with the following statements from 1 to 6. (1. Strongly disagree, 2. Disagree, 3. Slightly disagree, 4. Slightly agree, 5. Agree, 6. Strongly agree)**

	Strongly disagree	disagree	Slightly disagree	Slightly agree	agree	Strongly agree
--	-------------------	----------	-------------------	----------------	-------	----------------

<b>Q5.1</b>	I worked hard at studying English in the past 2 weeks.	1	2	3	4	5	6
<b>Q5.2</b>	I enjoyed learning English in the past 2 weeks.	1	2	3	4	5	6
<b>Q5.3</b>	I can imagine myself in the future as someone who is good in English.	1	2	3	4	5	6
<b>Q5.4</b>	Learning English is necessary because people surrounding me expect me to do so.	1	2	3	4	5	6
<b>Q5.5</b>	Studying English is important to me because it is useful.	1	2	3	4	5	6
<b>Q5.6</b>	I have to learn English to avoid negative consequences, e.g. failing an English subject.	1	2	3	4	5	6

*[Additional questions included in logs 6-9]*

**Q6. Have you taken any standardised English tests since the beginning of March?**

Yes / No (If you haven't taken any tests, please go to Q7)

Q6.1 Name of the test:

Q6.2 When did you take it? [ Month / Year ]

Q6.3 Did you use any of the Dr. GEPT feedback for your test preparation? [ Yes / No ]

Q6.4 If so, how?

Q6.5 Did you use the learning resources provided by Dr. GEPT for your test preparation? [ Yes / No ]

Q6.6 If so, how?

**Q7. Do you plan to take any standardised English tests in the next 6 months?**

[ Yes / No ] (If you are not planning to take any tests, skip Q7.1-Q7.3)

Q7.1 Name of the test:

Q7.2 When are you taking it? [ Month / Year ]

Q7.3 How are you planning to prepare for the test?



## Appendix E: Interview questions & guidelines

### A. Reactions to the Dr. GEPT feedback

1. In the first log, you noted that when you first received the score and feedback, you felt \_\_\_\_\_. Can you tell me more about how you were feeling?

[Ask participant to look at the feedback sheet during the interview if possible]

2. Did the Dr. GEPT feedback affect your English learning motivation? If so, in what way?
3. Did you set any learning goals after the February GEPT test? [link to log 1, Q3 and Q4]
  - a. If yes → Was the Dr. GEPT feedback involved when setting these goals? If so, how?
  - b. If no → Did you make any plans on how you might use the Dr. GEPT feedback? Why or why not?

### B. English learning activities and engagement with feedback

#### General questions – for all participants

4. How have you been studying English since the last GEPT test?
5. How often have you used the Dr. GEPT feedback in your English learning activities in the past 4 months?
  - a. If often, what role do you think Dr. GEPT feedback play in your learning?
  - b. If not often, what do you think were the reasons?
    - [Go to specific questions if reasons given concerned cram schools, school exams, too much trouble to use]
6. Looking at the feedback sheet in front of you, there are three sections: Analysis of strengths and weaknesses, learning advice, key vocabulary and sentence patterns.
  - a. Which sections do you find useful / or not so useful? In what ways?
  - b. How have you used that part?
7. Let's look at the learning advice (A to J) in more detail. Did you use some of this advice in your English learning activities in the past 4 months?
  - a. If yes: Can you tell us more / give us a bit more detail?
  - b. \*\*\*If no: Why did you not use the advice?\*\*\*
    - e.g. Were you aware of these pieces of advice? Was there too much text to read? Was the advice difficult to understand? Did you see the advice as not very relevant?

#### Specific questions – ask where relevant to the participant

For those who consumed media in English (e.g. Netflix, TED talks) ...

- Did you do these activities based on your own interests, Dr. GEPT's recommendation, or both?
- Has Dr. GEPT's learning advice influenced the way you consumed these media? If so, in what ways?

For those who attend cram schools...

- Is the advice on learning English you receive from cram schools and from Dr. GEPT similar or different?
- How has that influenced your English learning activities?

For those who were affected by school exams...

- Were you focusing on studying other subjects in school?
- Is what you need to study for school exams different from the feedback and learning resources offered by Dr. GEPT?

For those who used the key vocabulary and sentence patterns section...

- Can you give us a bit more detail on how you used the vocab and grammar section? / What do you do when studying that section?

For those who reported using the learning resources but stopped from later logs

- Do you remember why you were not using the learning resources anymore?
- Is there anything that would make you use the Dr. GEPT learning resources more or for longer?

For those who said they don't know how to use the resources / too much trouble

- Can you say a bit more why it is too much trouble?
- What further guidance/help would you like to have with the resources?

For those indicating they were taking a next test

- Have you been using Dr. GEPT feedback [all/any of the 3 sections] in studying for the next test?
  - Will you be...
- In what ways do you think Dr. GEPT feedback is useful / not useful to you when studying for the next test?

For those who did NOT indicate that they were taking a next test

- If you were taking another GEPT test, would you use Dr. GEPT when studying for it?
- If you were taking another English test (other than GEPT), would you use Dr. GEPT...?
- In what ways do you think Dr. GEPT feedback is useful / not useful to you when studying for the next test?

### **C. Closing questions**

8. [optional] Looking back again, what role do you think Dr. GEPT feedback has played in your learning activities in the past 4 months?
9. [optional] Would you do anything differently if you could go back in time?
10. Are there any changes in the Dr. GEPT feedback you'd like to see?

## Appendix F: Coding schemes for learning log and interview data

### Coding scheme for learning log data

#### 1.1) Affective response

1. positive
2. negative
3. mixed

#### 1.2b) Reason for usefulness

1. Identifying specific weaker areas needing improvement
2. Identifying specific vocabulary or grammar items needing improvement
3. Identifying strengths
4. Suggestions of ways to improve
5. Provides a better focus/direction for further learning
6. Makes further learning more efficient
7. Did not understand (the feedback)

#### 1.3b) Plan about how to use Dr. GEPT feedback

1. Extra time studying
2. Work with the English teacher
3. Work on vocabulary and grammar
4. Work to improve listening skills
5. Incorporate Dr. GEPT feedback suggestions into study/practice using own materials
6. Take learning advice from Dr. GEPT
7. Practising on specific test section(s)

#### 1.4) Next goals in learning English (Log 1)

1. (Re)taking GEPT intermediate test [passing]
2. Taking/passing GEPT intermediate speaking & writing test
3. Taking/passing GEPT higher-intermediate test
4. Taking/passing a GEPT test – unspecified level
5. Tasking/passing another English test (other than GEPT)
6. Improving speaking
7. Improving vocabulary
8. Preparing for school exams

#### 2.1) Hours spent learning English outside school (over 8 logs per participant)

1. Generally increasing over time
2. Generally decreasing over time
3. Irregular
4. Peak at first week then decrease
5. Constant (more or less)
6. Constant with spikes
7. Indeterminate (4 or less entries submitted)

2.2) Learning activities outside school

1. Practise writing (e.g. writing an essay)
2. Practise speaking (e.g. reading aloud)
3. Practise listening
4. Memorise vocabulary
5. Work on exercises or assignments
6. Do practice tests
7. Reviewed school English lessons
8. Extensive reading (e.g. magazine, novel)
9. Watch English-language programmes (e.g. Netflix, movie)
10. Using English learning apps
11. Attend cram school
12. Reviewed grammar
13. Reviewed English – unspecified
14. Study English learning magazines (e.g. Studio Classroom)

2.3a) Used Dr. GEPT feedback in learning activities (over 8 logs per participant)

1. Using consistently
2. Using infrequently
3. Using mainly in the first few weeks
4. Never used
5. Indeterminate (4 or less entries submitted; no clear pattern)

2.3b-H) How Dr. GEPT feedback was used (if yes)

1. Focus on the weaker areas identified by Dr. GEPT
2. Studied key vocab and sentence patterns in Dr. GEPT feedback

2.3b-R) Reason for not using Dr. GEPT feedback in learning activities (if no)

1. Using own plans or methods to improve English
2. Pressure from school – of studies and other assessments (e.g. exams), or extra-curricular activities
3. Time limitations - other
4. Learning activities focusing on meaning (e.g. reading novels, watching movie)
5. Forgotten about Dr. GEPT feedback
6. Not know how to use the feedback
7. Already used in previous weeks
8. Other or unspecified reasons

2.4) Use of Dr. GEPT learning resources

1. No
2. Key vocabulary and sentence patterns
3. Learning advice
4. Unspecified section

2.6) Have taken standardised tests since log began

1. No
2. GEPT

2.7) Plan to take standardised tests next 6 months

1. GEPT speaking and writing
2. GEPT listening and reading (re-take)
3. GEPT high-intermediate
4. GEPT (unspecified)

2.7.3) Test preparation plan

1. Practice tests
2. Reading test preparation materials online
3. Studying vocabulary
4. Reading articles or novels
5. Improving grammar
6. Same way as usual
7. Cram school
8. Other

### **Coding scheme for interview data**

W01. Reasons for the stated emotional responses

- 1a. Test results better than expected
- 1b. Test results worse than expected
- 1c. Having passed the test
- 1d. Receiving helpful feedback
- 1e. Not happy with own performance
- 1f. Determined to improve
- 1g. Effort did not pay off

W02. Relationship between Dr. GEPT feedback and own expectations / learning directions

- 2a. Well aligned with the expectations (strengths and weaknesses)
- 2b. Shaped the learner's learning directions
- 2c. Encourages the learner to be more proactive

W03. Learning goals or action plans following the GEPT test

- 3a. Memorise vocabulary (regularly)
- 3b. Increase in frequency/time for study
- 3c. Increase in study effort
- 3d. Pass another English test (e.g. GEPT int. speaking & writing)
- 3e. Broaden the scope of learning

W04. Whether and how Dr. GEPT feedback was integrated into own learning goals or action plans

- 4a. Work on areas Dr. GEPT pointed out as weaknesses
- 4b. Affirmed own learning directions / action plans
- 4c. Not integrated

W05. How the learner studied English since the last GEPT test

- 5a. Work on assignments, quizzes and tests from school

- 5b. Do practice tests
- 5c. Do exercises from magazines or practice books
- 5d. Memorise vocabulary
- 5e. Read extensively (e.g. read articles, novels)
- 5f. Read aloud to practise speaking
- 5g. Review materials from school or cram school
- 5h. Practise listening
- 5i. Consume media in English language

W06. Whether and how Dr. GEPT feedback was integrated into the learning/study activities

- 6a. Re-read Dr. GEPT feedback
- 6b. Use learning advice or suggested study activities/methods from Dr. GEPT
- 6c. Focus on weaker areas identified in Dr. GEPT feedback
- 6d. Focus on weaker areas identified by the learners themselves
- 6e. Further study based on information provided by Dr. GEPT (e.g. Vocabulary and sentence patterns)
- 6f. Study according to the advice from school teachers

W07. Most useful part of Dr. GEPT feedback

- 7a. Vocabulary and sentence patterns
- 7b. Strengths and weaknesses
- 7c. Learning advice

W08. Less useful part of Dr. GEPT feedback

- 8a. Vocabulary
- 8b. Reason - Alignment with learners' self-evaluation and study plans
- 8c. Strengths and weaknesses
- 8d. Reason – needing more clarity
- 8e. Particular piece(s) of learning advice

W09. Whether and how the section “learning advice” was used

- 9a. Unaware of learning advice section
- 9b. Used more than one suggestion

W010. Reasons for following own plans / not using GEPT feedback later on

- 10a. Pressure from school and other tests
- 10b. Extracurricular activities
- 10c. Time limitations
- 10d. Did not feel the need to revisit Dr. GEPT feedback (e.g. got the gist)
- 10e. Forgotten to use Dr. GEPT
- 10f. Unaware or fail to access Dr. GEPT feedback
- 10g. Still using it but not recorded in learning log

- W10.1 Similarities and differences between Dr. GEPT advice and school or cram school

W011. Future plans for taking another English test

- 11a. GEPT Speaking and Writing – same level

- 11b. Further in the future (e.g. after another test)
- 11c. Re-take Listening and Reading – same level
- 11d. GEPT – Next level

W012. How Dr. GEPT feedback will be used in test preparation

- 12a. Revisit Dr. GEPT feedback
- 12b. Integration with other test preparation materials
- 12c. Not using Dr. GEPT feedback
- 12d. Focus on weaker areas identified in Dr. GEPT feedback
- 12e. Use learning advice from Dr. GEPT
- 12f. To help determine where to start

W013. Suggestions for further development of Dr. GEPT feedback

- 13a. Increasing or enhancing study content
- 13b. Links to videos or further materials
- 13c. Mobile app
- 13d. Further quizzes with Strengths/Weaknesses analysis

N/A – Cannot be coded: e.g. responses irrelevant to the question or to any of the above themes; only a yes/no answer

Other – Useful but unrelated to the existing topic codes



**Appendix G: Confirmatory factor analysis (parameter estimates for each factor in the full model)**

Ideal L2-Self		Ought-to L2 Self		Instrumentality Promotion		Instrumentality Prevention		Motivated learning behaviour		English Self-concept & Language Learning Experience		Feedback Perceptions	
Item	FLE	Item	FLE	Item	FLE	Item	FLE	Item	FLE	Item	FLE	Item	FLE
B1.1	0.74	B2.1	0.60	B3.1	0.94	B4.1	0.82	C1.1	0.91	C2.1	0.59	D1	0.24
B1.2	0.81	B2.2	0.54	B3.2	0.89	B4.2	0.80	C1.2	0.88	C2.2	0.71	D2	0.78
B1.3	0.78	B2.3	0.59	B3.3	0.34	B4.3	0.58	C1.3	0.78	C2.3	0.86	D3	0.68
B1.4	0.75	B2.4	0.76	B3.4	0.42			C1.4	0.68	C2.4	0.87	D4	0.71
B1.5	0.65	B2.5	0.81	B3.5	0.43					C2.5	0.81	D5	0.77
												D6	0.61
												D7	0.68
												D8	0.68
												D9	0.22
												D10	0.81
												D11	0.84
												D12	0.89
												D13	0.84

FLE = factor loading estimate