

EAP Learner Perceptions of Curiosity, Interest and Applying Critical Thinking Skills: A Mixed Methods Approach to Narrative Based Course Evaluations

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Abstract

Applying critical thinking skills (CTS) and engagement through interest are among the primary aims of modern education. This mixed-methods study examined to what extent 23 third-year Japanese high school students considered those aims met in an English for academic purposes (EAP) ‘current affairs’ class. This was achieved through a narrative writing task, which had a dual purpose as a reflective review of the year’s study while simultaneously generating data for course evaluation. Applying the narrative frame method for guiding students’ accounts, subsequent analysis mainly focussed on those two aims in interpreted themes of ‘manifestations of curiosity & interest’ and perceptions of ‘developing CTS,’ both emerging in eight sub-themes each. Together with the narratives, quantitative data (embedded rating scale scores, TOEIC test results, class assessment scores) were employed in statistical analyses (averages, Kendall’s Tau correlations) with a complementarity aim. Both quantitative and qualitative analyses indicated students mainly had positive feelings regarding the class aims, though not uniformly, thus generating constructive feedback for evolving the class. Epistemologically grounded in pragmatism, this study offers an example methodology for conjoining narrative with statistical analyses while applying educational psychology constructs for in-

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depth, aim-focused course evaluations with built-in reflective practice for students in EAP classes.

Curiosity, Interest and Critical Thinking

In L2-English classrooms, levels of curiosity and interest have been positively associated with, for example: L2 willingness-to-communicate (Mahmoodzadeh & Khajavy, 2019; Smith, 2021); reading behaviours and comprehension (Dhanapala & Hirakawa, 2016); study intentions (Lake, 2013; Smith, 2021). At the same time, Moore (2019, p. 3) states, in English for academic purposes (EAP) contexts, the importance of critical thinking skills (CTS) has come to almost ubiquitously have, “...a major influence on the teaching of EAP.”

Given their importance, curiosity, interest and developing CTS are explicit aims in my lesson and syllabus designs, in particular for an elective ‘current affairs’ class that I teach to third-years on a secondary level EAP program in Japan. The program, focussed on language and international studies, has several classes where English is the medium, not only of instruction, but also of interaction. The current affairs class is one of those and is taught through a ‘content language integrated learning’ (CLIL) methodology. The main aim of the class for students is to simultaneously develop their CTS and language skills (and to have an awareness of doing so). At the same time, one of my main aims as a teacher is to provide topics and content that enable and encourage engagement through curiosity and interest toward the complex, transnational topics we study.

The initial impetus for this study came from the wide, sweeping national curriculum changes in high schools to be phased in from

2022 enacted by Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT, 2020). These have the broad purpose of moving away from rote-learning and to support the development of students' autonomy and CTS. In line with these changes, there has become a strong possibility that the current affairs class will be moved from an elective to a core subject that all the third-year students on the program will have to take. There was, therefore, a need for a thorough review and evaluation of the class before this happens. This study therefore had the purpose of developing a form of evaluation appropriate to this EAP/CLIL context focused on analysing the extent to which students felt different forms of curiosity & interest (including constructs specific to L2-English classrooms), along with how and to what extent they perceived themselves to be developing their CTS in their studies. The inferences gained from these analyses could then be used to evolve the course.

The data to achieve this came from a final assignment in the 2020/21 current affairs class, which had the dual intention of being both a form of course evaluation and at the same time a reflective assignment through which students could usefully look back on their year of study. They wrote reflective accounts on what and how they learned in the class with content prompted and focussed by the narrative frame method as developed by Barkhuizen & Wette (2008). This study uses a mixed-methods research (MMR) design with individual narrative accounts combined with complimentary statistical data to potentially give a better overall understanding of the class than narrative alone.

The exact form of MMR design employed here does not seem to have been conducted before. In the following literature review, I

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therefore aim to give a brief epistemological justification for the approach, and then define the main constructs under analysis and their forms of classification: ‘curiosity & interest’ and ‘critical thinking skills.’

Literature Review

Pragmatism and Subtle Realism

Riazi & Candlin (2014, pp. 161-162) affirm that MMR studies should initially clarify their underpinning theoretical assumptions in order to solidify their research design foundations, against which the warrantability of any subsequent inferences can be judged. Onwuegbuzie & Johnson (2006, p.52) also highlight various forms of legitimation to be built into the research process for MMR—not merely as hoped for, possible outcomes, rather as criteria guiding subsequent analyses and inferences to be, “...credible, trustworthy, dependable, transferable, and/or confirmable.” Given the unconventional form of combining analyses here, narrative and statistical, this study is particularly concerned with commensurability legitimation (i.e., that it is possible to make justifiable inferences when transitioning between and integrating ‘paradigms’).

In terms of integrating paradigms in the current study, the design is grounded in Hammersley’s (1992, pp. 50-44) position of ‘subtle realism,’ which is an epistemological basis for social science research rejecting both naive realism and radical relativism. With roots in the original pragmatism and community-based inquiry practices as put forward by C.S. Peirce (2013), it is a fundamentally fallibilist position aiming for reasonable, justified beliefs, not absolute facts—research is to produce answers to questions of interest, not

reproducing reality. Hammersley (1996, p. 167) also asserts that in psychology and social science, “...there is no fixed relationship between particular philosophical views and the use of particular methods.” He prefers the term ‘methodological eclecticism’ to ‘mixed-methods’ as the latter implies a paradigmatic segregation—MMR is used here out of convention, though applied in this spirit of eclecticism. Bruner (1986, pp. 49-53), a pioneer of narrative analysis in psychology, posits that of our two primary modes of understanding the world—the logico-scientific, numerical-driven *paradigmatic mode* and the interpretive, *narrative mode* grounded in story structures—are not derivable from each other. A ‘subtle realist’ may respond that as long as both the narrative and the statistical data used here have something useful to give in terms of answering any research questions, then they can and should be utilised together.

Reflection and Evaluation through Narrative Frames

We live through two selves (Kahneman and Riis, 2005); an in-the-moment ‘experiencing-self’ and a retrospective, imperfect copy of those experiences in a ‘remembering-self’ that weights far more salience on the affective peaks and endings of those experiences—the peak-end rule. The remembering-self dominates our lives in terms of our memories, learning and decision making. The remembering-self and the stories by which we describe its content are what we apply when reflecting on the past and in evaluating course experiences. In a quantitative analysis Woloschuk et al. (2011) found the peak-end rule was shown to be consistent with how 625 first and second year medical students responded in end of course evaluations.

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The narrative frame method (Barkhuizen & Wette, 2008) uses a series of prompts arranged in story form for eliciting pre-structured accounts of experiences. Frames enable researchers to have some control in constraining and focusing the information into a pattern partly pre-organised for analysis. While there is a necessarily imposed direction from the frames, participants complete them “...according to their own experiences and their reflections on these in the process of narrative knowledging (Barkhuizen, 2011, p. 402).” ‘Narrative knowledging’ signifying the reflective, creative unfolding in which we remember, (re-)construct and interpret stories. Qualitatively based, narratives should have great potential in EAP/EFL contexts as giving detailed, course specific feedback in a form of realistic representation of the dominant remembering-self’s perspective.

Hiratsuka (2014) applied narrative frames to explore the experiences of 36 Japanese high school students of L2-English and found that the frame method was both a useful tool for learning in the process of their writing, and also a medium through which students could reflect on and express their opinions about their classes. Hiratsuka (2018) later specifically employed narrative frames as a course evaluation device completed by 26 university students at the end of an English teacher training course. He found that they generated “...invaluable student feedback... ..filled with nuanced and enriched responses... (p. 6).” Hiratsuka concluded his study by stating that course evaluation is an “...often critically unexamined practice...,” while also suggesting that narrative frames could be combined with other research methods, “...to gain more robust data to inform the creation and delivery of better classroom experiences for all (p. 6).” This is something this study seeks to substantiate by increasing the power of

narrative frames in combining them with statistical data.

Curiosity & Interest

‘Curiosity’ is defined by Litman (2005, p. 793) as, “... a desire to know, to see, or to experience that motivates exploratory behaviour directed towards the acquisition of new information...” Whereas, ‘interest’ is delineated by Hidi (2006, p. 70) as a separate, “...unique...” variable manifested as a psychological state directed towards objects of interest, “...characterized by increased attention, concentration and affect...” and, “...a relatively enduring predisposition to re-engage with particular content such as objects, events and ideas...” For some researchers, they are considered separate constructs, with *curiosity* more a trait inclination toward the novel, and *interest* as (re-)engagement with objects of interest. Nonetheless, they are deeply interwoven and can be viewed as aspects of the same knowledge acquisition/mammalian seeking drive (Murayama et al., 2019; Panksepp, 2010; Smith, 2021)— hence the non-dual sense of the general label, *curiosity & interest*, used here.

In terms of classification and measurement, through several iterations of factor analysis on scales of curiosity, Kashdan et al. (2020) refined the construct of curiosity into 5(+1) dimensions, in their five-dimensional curiosity scale revised (5DCR). Three of those factors were significant to Smith (2021— as expanded on below), and also in the present study, so must be clarified. *Joyous exploration* is an ‘interest-type’ curiosity characterised by positive affect in (re-) engagement with and exploration of experiences or information. *Deprivation sensitivity* is an impulse to alleviate negative affect or tension caused by knowledge gaps, similar to alleviating hunger with

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food. *Stress tolerance* comes from appraisal views of curiosity where stimuli may be appraised in three ways; is it novel; is it complex; does the novelty and/or complexity induce tolerable levels of stress?

Using an adapted version of the 5DCR, Smith (2021) analysed Likert scale questionnaire data from 285 Japanese high school students. Multiple regression analyses showed statistically significant relationships between the 5DCR and two L2-learner psychology constructs; ‘international posture’ (Yashima, 2009) and ‘curiosity in English studies’ (CiES— Smith, 2021). International posture is composed of two main components: firstly, an ‘attitudinal behavioural propensity’ relating to desire for contact with people from, and activities or work in other nations; secondly, ‘knowledge orientation’ as a desire to know more about and discuss transnational issues. CiES is also a construct with two primary aspects: curiosity about English as a language (grammar, pronunciation, etc) and curiosity about other cultures. The results of Smith’s (2021) regression analyses found the 5DCR accounted for significant variance in both L2-psychology constructs, with .29 of the variance in international posture (mostly given by joyous exploration and stress tolerance) and .23 in CiES (mostly through joyous exploration, with slight additional variance from deprivation sensitivity). A further regression model showed CiES as the primary variable together with international posture accounting for slightly over half the variance in ‘intended learning effort.’ This suggests constructs conceptually and statistically infused with curiosity dimension associations have potent predictive relationships with learning intentions in EFL/EAP classrooms.

Critical Thinking Skills (CTS)

With the recent curriculum changes in Japan (MEXT, 2020) teachers in the Japanese secondary context are now mandated to consider certain forms of CTS across all subjects with their explicit inclusion in new assessment criteria in terms of *shikouryoku* (thinking/reflection skills) and *handanryoku* (evaluative skills). CTS is a broad concept including a range of task appropriate skills and dispositions, so the following comes with the caveat of leaving much out (e.g., understanding of fallacies, rhetorical devices, cognitive biases, etc), but seeks to show how it has been applied in this study.

The sense of ‘critical thinking’ being different from other kinds of thinking seems to hang on the word ‘critical,’ coming from the word ‘critic’ with etymological roots back to the Greek *kritikos*, meaning someone able to make judgments. In Ennis’s (1991, pp. 8-9) description of an ideal critical thinker, the word ‘judge’ or ‘judgement’ appears in six out of a list of 16 abilities in terms of judging: definitions; observations and reports; source credibility; both deductive and inductive inferences; value judgments— all employed in the overall task of CTS, which Ennis (1991, p. 6) characterises as, “...reasonable reflective thinking that is focused on what to believe or do.”

Similarly, in the context of EAP classes, Moore (2019) suggests one view from which to look at CTS is through the framework of the ‘taxonomy of learning objectives’ as defined by Bloom (1956 — cited in Moore, 2019). This study leans more on the definitions of the revised version of the taxonomy from Anderson & Krathwohl (2001), but both versions have six largely parallel components: *remembering (knowledge); understanding; applying; analysing; evaluating; creating.*

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Moore claims the taxonomy, "...is especially useful for delineating those tasks that require only the reproducing of knowledge (e.g., memorization, rote learning), and those that require different types of judgment... (p. 8)" The taxonomy is often thought of hierarchically, with *creating* at the apex, but as Westbrook (2014) states, "The different skills can and should be used in a more integrated way." For example, one cannot adequately evaluate information without sufficient background knowledge of a topic. One cannot synthesise (and create) answers from various points of view on a problem without careful analysis first. In CTS the taxonomic skills function concomitantly.

Curiosity & interest are also fundamentally linked to CTS. As Moon (2008, p. 75) puts it, for many curiosity & interest are "...the driving force behind critical activity—the whole reason why a person might question and ‘worry at’ an issue." Ennis (1991, p. 8) lists at least four out of ten dispositions of CTS that conceptually link to curiosity & interest in terms of: trying to be well-informed; seeking reasons; looking for alternative explanations; being open-minded and considering the views of others. In concordance with that final disposition Browne & Keeley (2018, p. 10) also point out that one of the primary values of a critical thinker is curiosity about the thoughts of other people, which can, "...liberate you from your current condition of partial knowledge. To be a critical thinker requires you to then ask questions about what you have encountered. Part of what you gain from other people are their insights and understanding..."

In summary, at the same time as viewing CTS through the prism of the taxonomy of educational objectives, this research seeks to add to the field by also examining student accounts from both well

established (e.g., international posture) and especially the more recently established (e.g., 5DCR, CiES) species of curiosity & interest constructs applicable to EAP/EFL contexts. Application of these newer constructs is of interest in itself, but their links to CTS may also be highlighted. The analyses will primarily come from the qualitative description provided by students' focused, narrative frame accounts of the course. However, augmented by an MMR design, it should also add evaluative power to the frame method by combining it with statistical data— potentially helping in a complimentary way to find useful points of evolution for the class, primarily relating to improving student perceptions of curiosity & interest and CTS practice.

Methodology

Research Questions

Grounded in the above literature review and rationale, the research questions here are:

RQ1) Through analysis of complimentary narrative and quantitative data, to what extent did my current affairs students perceive two key aims of the course being met, in that:

- a) the course should stimulate feelings of curiosity & interest?
- b) the students should have a sense of practicing and developing their critical thinking skills?

RQ2) What impetus can the narrative and quantitative analyses give toward evolution of the class?

Context and Participants

The 23 participants (21 female, two male) in this study were from two class groups (A, seven members; B, 18 members— two could not

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participate) of a third year ‘current affairs’ elective class, for which I teach and design all class materials (I also have an assistant teacher for triangulating presentation scores). This class is part of a specialised EAP program at a Yokohama city municipal high school. The program has its own remit to go somewhat beyond the conventional Japanese secondary level curriculum designs with a primary focus on international and language studies aiming toward preparation for similar undergraduate programs. Over a normal year the class groups meet for two hours a week and usually complete two topics in a normal term. As Bruner (1986, p. 129) states, "...the language of education... ..must express stance and must invite counter-stance and in the process leave place for reflection, for metacognition." As such, for each topic the main task is to present an answer to a controversial, dichotomous question on a relatively current transnational issue. Students are given handouts supporting both sides, along with additional resources (websites, videos, statistics, etc) and discussion questions to stimulate thought, collaborative understanding, and analysis through dialogue. Individuals then have at least a class period and homework time to head off, research and produce their own answer through a dialectic process, which they explain in a presentation under five-minutes with slides (also handing in a written summary). This is followed by at least two-minutes of probing questions by the other observing students.

Table 1 shows our pandemic disrupted schedule with the first topic entirely online— without institutional video chat capabilities available at that time, so mostly achieved through posted resources and forum discussions on the Schoology platform, with presentations recorded and posted. With a subsequent, abnormal extension of two

weeks, the second term also came to encompass the final topic; normally prepared in the second and presented in the short third term— abbreviated for university entrance exams. The perturbations leaving term-three in need of an assignment, I set a narrative task with two main objectives: 1) as an assignment to be graded while at the same time engendering beneficial reflection on the years' study; 2) to garner feedback and evaluations of the course— especially with the possibility of the class becoming a core subject.

Table 1. The 2020-21 class schedule:

Term	Months	Topic/Task
1	April/May	1. (Online) Does <i>Capitalism</i> Harm or Help the World?
	June/July	2. Will <i>A.I.</i> Take too Many of Our Jobs?
2	Aug/Sept	3. <i>China & Japan</i> into the Future: Friends or Enemies?
	Oct/Nov	4. (<i>Gender equality</i>) Is Japan a Good Country to Live if You're a Woman?
	Nov/Dec	5. <i>Free topic</i> (as determined by each individual on a relatively current political, economic, social, etc, issue)
3	January 2021 (2.5 weeks)	6. Narrative reflection task.

Design and Procedure

Narrative data. A first choice to make was; in which language should the narratives be written? Hiratsuka's (2014; 2018) participants used both English and their native Japanese to minimise discomfort with the unfamiliar task and to aid rich description. There were, however, several reasons to make the narratives in English-only for the current

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affairs students. First, with a lot of experience writing various challenging English essays they would expect any assignment to be in English. For four students (including one Philippine national) who had lived abroad, English may be their more expressive language. Finally, even excluding those four, the median participant TOEIC score was still 680— significantly higher than the Japanese averages for fourth-year university students studying English (605) or international studies (630— Institute for International Business Communication, 2021).

Another suggestion of Hiratsuka (2018, p. 6) was to combine narrative frames with focus groups as a potential way to further increase their power. As Barkhuizen (2015, p. 99) states, “Narrative knowledging is also a social activity... Narratives are discursively constructed with others...” Thus, given the shared context of the narratives, in term-two’s final lesson in December, I got the students to engage in focus group discussions about the course, and groups took notes (throughout the period of constructing their own narratives I also encouraged discussion of their ideas and opinions with each other). The frame design (see Figure 1 below) was produced using the focus group notes together with relevant literature (as detailed in the literature review above). Barkhuizen (2011) highlights certain design elements, such as having a beginning, middle and end to a narrative, while emphasising the importance of context in narrative studies. As Barkhuizen (2008, p. 233) explains, “Narrative inquiry is contextualised inquiry.” Paragraph one therefore grounded things in the wider context of the international studies program, with paragraph two about the class experience— including consideration of the peak-end rule

(Kahneman and Riis, 2005) —paragraph three focuses on student perceptions of curiosity & interest and CTS practice, and paragraph four mostly relating to imagined futures.

I presented and explained the frames both on paper in class and online beforehand allowing students to copy and paste the frames to write their narratives and submit online. On the handout I gave instructions and two completed examples I had written; one with mostly positive views of the class, but shallow on details (so would not warrant such a high grade); with the other more in-depth, but tending towards ambivalence or negative feedback (but warranting a better grade to show that honest, considered, reflective feedback was most desirable). Most frame studies write on paper over one session, however, we had under three class-hours (after explanations) on computers, plus homework time, with the stipulation of not going over 1,000 words in total. After their submission and reading through each narrative several times before our final class, I had follow-up questions to get additional information from both individuals (mainly to check my understanding in cases where more clarity or further information was desirable) and to the groups as a whole.

Figure 1. Narrative Frame Design

Para 1: Course Context

- 1a) My name is ... and I am a [*program name*] student.
 1b) The international course is a program on which we... and...
 1c) To describe the average [*program name*] student I would say that they are...
 1d) The main reason I joined the international course three years ago was because...
^a1e) Now we are close to graduation, I... 1) *...really regret/ 2) ...regret/ 3) ...slightly regret/ 4) ...am slightly happy about/ 5) ...am happy about/ 6) ...am very happy about* ...joining the international course.
 1f) The main reason(s) for this is(are) that... , for example...

Para 2: Class General Impressions

- 2a) Last year, I chose to take this particular class mainly because...
 2b) Now we have almost finished, my biggest impression of this class was that...
 2c) To describe how we studied each topic, I would say that we...
^{ab}2d) This current affairs class was... 1) *...far too difficult/ 2) ...difficult/ 3) ...a little difficult 4) ...a little easy/ 5) ... easy/ 6) ...far too easy* ...for me.
 2e) The worst moment/thing about this class was...
 2f) The thing I found most challenging and difficult about this class was... , for example...
 2g) However, the best moment/thing about this class was...

Para 3: Curiosity & Interest + Critical Thinking

- 3a) Regarding the topics we studied, I would rank them by interest like this:
 3b) 1st, ...I chose this as the most interesting/least boring topic because...
 3c) 2nd was, ...;
 3d) 3rd, ...;
 3e) 4th, ...
 3f) Finally the least interesting/most boring topic for me was... because...
^a3g) To be honest, I found this class to be... 1) *...really boring/ 2) ...boring/ 3) ...slightly boring 4) ...slightly interesting/ 5) ...interesting/ 6) ...really interesting*.
 3h) My main reason(s) for my opinion is(are)...
^a3i) I also feel I was... 1) *...not really able to/ 2) ...not able to/ 3) ...not so much able to 4) ...kind of able to/ 5) ...able to/ 6) ...really able to* ...use and improve my critical thinking skills in this class.
 3j) This was mainly because..., for example...

Para 4: General View & Conclusion

- 4a) The main advice I would give to the students who will take this class next year is...
^a4b) I think this class is... 1) *...not at all related/ 2) ...not related/ 3) ...not so much related/ 4) ...kind of related/ 5) ...related/ 6) ...closely related/* to my future because...
^a4c) Finally, I found this reflective writing exercise... 1) *...very meaningless/ 2) ...meaningless/ 3) ...kind of meaningless/ 4) ...kind of useful/ 5) ...useful/ 6) ...very useful* ...for the following reasons...

Note: ^aThe rating scale options were mistakenly presented in reverse numerical order to the students, but were all reversed for analysis.

^bGiven the wording here, on follow up I confirmed that students interpreted options 1 & 6 as meaning 'very difficult/easy,' rather than 'beyond/beneath my abilities.'

Quantitative Data. Given the intention here to increase the power of the narrative frames and the overall aim of MMR being “...a better and fuller understanding of an issue (Riazi & Candlin, 2014, p. 160),” together with counts to be made on interpreted themes & sub-themes in the narratives, rating scale frames (see Figure 1) were embedded into the narrative structure. Such frames have three points of utility: 1) rating scales are common in course evaluations and can give an immediate overview of class opinions; 2) it gives participants a range of choices and therefore more freedom, richness and accuracy in expressing their feelings and story; 3) rating scale responses can also be used in statistical analysis (e.g., averages, correlation) along with other pertinent data points (as described below), which could emphasise conceptual inter-relationships that may potentially also be found in the narratives.

Additional quantitative data included a *class CTS* score calculated as a percentage of the maximum possible score from across the course topics— assessed in their presentations by myself and my assistant through four criteria points as derived from the taxonomy of educational objectives (Anderson & Krathwohl, 2001): 1) showing fundamental understanding of the information from class; 2) displaying good analysis and evaluation of information as key to the topics; 3) presenting a well organised opinion showing research beyond class information and highlighting connections and implications surrounding the topics; 4) the quality and quantity of their questions for other presenters. A similar *class English* score as a percentage was used, as assessed through the; a) accuracy, b) fluency, c) clarity of English in their presentations. Also used were their *TOEIC* listening and reading test scores taken in December 2020. In

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using data from 23 participants for correlational analyses, one obvious weakness is the small sample size, however, in cases where the results align with previous research, it could at least suggest an accordant finding.

I analysed both the initial qualitative and quantitative data in the Apple Numbers spreadsheet program, with statistical analyses done through StatPlus software.

Results & Discussion

Quantitative Analysis

The analysis began with the initial quantitative data as presented in Tables 2 and 3 below, which served as an initial lens through which I could view the subsequent narrative analysis. Table 2 shows generally positive rating scale results in evaluating study experiences. This could be questioned as students gave these ratings to me, their teacher, so giving negative feedback could induce a feeling of threat. However, it was not uniformly positive and, as highlighted in the narrative analysis below, many students did express a range of negative leaning opinions— potentially the most useful data for evolving the class.

Table 2. Initial Quantitative Data

Item	Mean	SD	Median (<i>Mode</i>)
TOEIC	698.7	161.30	695
Class English	84.3	9.83	86.1
Class CTS	66.6	8.99	68.1
1e) Unhappy ~ Happy (1 ~ 6) joining program	4.91	1.28	5 (6)
2d) Class was difficult ~ easy (1 ~ 6)	2.30	1.36	2 (1)
3g) Class was boring ~ interesting (1 ~ 6)	5.04	0.83	5 (5)
3i) Was not able ~ able (1 ~ 6) to use CTS	4.39	1.31	5 (5)
4b) Class unrelated ~ connected (1 ~ 6) to future	4.91	1.00	5 (5)
4c) Reflective essay meaningless ~ useful (1 ~ 6)	4.64	1.08	4 (4)

Note: n = 23, see Figure 1 for frame details.

Table 3 shows pertinent correlational relationships— prior to analysis rating scales 1e and 4c were considered conceptually less relevant, so have been omitted from this analysis. With the small sample size and the assumptions of being either continuous or ordinal variables with monotonic relationships met, Kendall’s Tau (τ) correlations based on ranked concordant pairs were calculated.

The clearest positive correlation was between students’ TOEIC scores and their class English scores, suggesting a convergent validity in the assessment of their English proficiency, though through different skills— listening and reading vs. presenting. As Moon (2008, p. 54) states, in applying CTS, “There is a need to be reasonably adept with language... ...a need for clarity and precision in language and ideas.” Thus, especially with the added cognitive cost of working in an L2, there is an expected positive correlation between their CTS scores and both class English and TOEIC

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scores— a similar correlation was found in Smith (2019) between TOEIC scores and a triangulated CTS score ($n=35$, Pearson's $r=.60^{**}$). Given the potential association between L2-English proficiency and CTS (though one may speculate that the association diminishes as proficiency rises and one's L2 comprehension and resources increase), finding a positive correlation ($.36^*$) between TOEIC scores and how easy students found the course is unsurprising. There are also associations between how interesting students found the class and their actual CTS scores ($.35^*$), and a somewhat higher correlation between student perceptions of using CTS with their levels of interest ($.41^{**}$).

Table 3. Kendall's Tau (τ) Correlation Analysis:

	Item	1	2	3	4	5	6
1	TOEIC Score	1					
2	Class English	.68***	1				
3	Class CTS	.52***	.48***	1			
4	(2d) Class was difficult ~ easy	.36*	.27	.19	1		
5	(3g) Class was boring ~ interesting	.19	.27	.35*	-.01	1	
6	(3i) Was not able ~ able to use CTS	.14	.29	.04	-.10	.41**	1
7	(4b) Class unrelated ~ connected to future	-.26	-.23	-.24	-.17	.22	.19

Note: $n=23$, Sig. (two-tailed): * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Finally, from paragraph-three in the narratives (Figure 1, 3b-3f) were student rankings of the five class topics (See Table 1). A simple system of five-points for a first-place choice, four for second, progressively down to one-point for a 'least interesting' vote was

used to calculate the following results: Free topic (84 points); Gender Equality (74); A.I. (73); China & Japan (66); Capitalism (48). Capitalism shall be commented on more below, but it is notable that the topic which students chose and freely explored themselves was voted as the most interesting.

‘Manifestations of Curiosity & Interest’ and ‘Developing CTS’

Following the principles of thematic analysis as explicated in Nowell et al. (2017) and Vaismoradi et al. (2013), the process began with multiple (re-)readings of the complete set of student narratives for me to: a) grade and give feedback to the students; b) work out necessary follow-up questions; c) simply soak in the stories that the students had constructed. Same frame sets were then collated into individual Apple Numbers sheets where sub-themes were labelled using a letter coding, then colour-coded into overarching themes. A deductive approach linking to established literature predominated regarding thematic interpretation and categorisations of ‘Manifestations of Curiosity & Interest’ and perceptions of ‘Developing CTS.’ Nevertheless, there was also flexibility allowing for inductive emergence of themes and sub-themes from the narratives.

The initial generation of codes took place from the end of March into May 2021, with the second, third and final confirmation rounds of interpretation and analysis taking place from July to November, culminating in the final themes as shown in Table 4. From the standpoint of being both a teacher knowing his students after almost three years of various classes together, and also as a researcher with all the unconscious, agenda-laden biases that may be entailed thereof, I applied multiple codings to frames in an overtly saturated

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way both in terms of raw semantic content and pragmatic implications. Open-frames were completed with an average of 27 words, ranging from a minimum of five words to a maximum of 158 words. A total count of 1315 interpretations over 23 students' 17 individual open-frames (giving a total of $23 \times 17 = 391$ interpretable frames) averaged to just over three sub-themes discerned per open-frame. Different researchers could have different interpretations in some cases, nevertheless, a plausible argument based on the “cardinal rule of coding” of qualitative research— as expressed by Taylor et al. (2016 p. 183), “...make the codes fit the data and not vice versa,” —can be presented for each interpretation, and consistency was an explicit aim. I also considered and counted separately interpretations of students expressing negative sentiments (as made clear in examples below— often where they felt they couldn't achieve or feel something expected). I terminated the process with 16 sub-themes emerging related to the first research question (Tables 5 and 6 below).

As Barkhuizen et al. (2014) point out, combining and analysing collections of frames tends to de-personalise stories. Focussing on the research questions and within reasonable space restrictions, it is impossible to (re-)tell everyone's story or expand on all the themes. Instead, there follows a necessary compromise of highlighting some illustrative excerpts with targeted analysis.

Table 4. Narrative Theme Counts:

Theme:	+	-	Total
Manifestations of Curiosity & Interest (C&I)	379	67	446
Developing Critical Thinking Skills (CTS)	278	71	349
Studying & Developing English Skills; presentations, discussion, etc	183	35	218
Other Aspects of Studying Current Affairs; time management, etc	80	40	120
Personal Achievement & Growth; confidence, grades, etc	72	17	89
School/Program Experience; uniqueness, international events/activities, etc	56	1	57
Positive character traits of classmates	36	0	36
Totals:	1084	231	1315

Note: ‘+’ = positive/neutral expression, ‘-’ = negative expression.

Over the rounds of analysis ‘manifestations of curiosity & interest’ (C&I) coalesced into eight sub-themes. Coding deductively labelled came from Kashdan et al.’s (2020) 5DCR curiosity dimensions in *joyous exploration*, *deprivation sensitivity* and *stress tolerance*. *Joyous exploration* had the highest sub-theme count overall, but may be skewed slightly by being prompted by and appearing in frame 3h for all 23 participants. The 5DCR dimensions were labelled as “indications,” meaning a given sentence and the language the students used *indicate* an interpretation of that particular flavour of curiosity in some context of the class, rather than being a concrete illustration of anything approaching a trait of curiosity or interest—this caveat applies to all the interpretations in this research. Also apparent were the sub-scale classification pair from Yashima’s (2009) international posture construct labelled here as *IP-knowledge* (also

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with a high count, perhaps predictably given the nature of the class) and *IP-interaction*, along with salient instances of Smith’s (2021) ‘curiosity in English studies’ (*CiES*) construct. Sub-themes that emerged from inductive discernment were expressions of interest toward *knowledge exchange* in learning from others’ viewpoints through dialogue. As interest in learning through other people’s differing perspectives, there is similarity here to Browne & Keeley’s (2018— see lit. review) description of curiosity in CTS. Finally, aspects were found here in making *connections to self* and students’ lives beyond the class. This is similar to the finding of Slot et al. (2020) in a study of 90 adolescents where connections to biographical identification and personal history were a mechanism of interest sustainment in everyday life experiences.

Table 5. RQ 1(a) Sub-theme Counts:

Manifestations of Curiosity & Interest (C&I)	+	-	Total
Indications of <i>joyous exploration</i> ; desiring new information/ideas	95	12	107
Indications of <i>deprivation sensitivity</i>	7	4	11
Indications of <i>stress tolerance</i> (or its opposite; stress sensitivity)	34	34	68
Interest in <i>knowledge exchange</i> through dialogue	68	10	78
Curiosity in English Studies (<i>CiES</i>)	9	1	10
International posture: knowledge orientation (<i>IP-knowledge</i>)	89	1	90
International posture: attitudinal behavioural propensity (<i>IP-interaction</i>)	26	0	26
<i>Connection to self</i> and life beyond the class	51	5	56
Totals:	379	67	446

Note: ‘+’ = positive/neutral expression, ‘-’ = negative expression.

For example, ‘Ayame’ (all names used are pseudonyms), who had been studying abroad in North America for the academic year 2019/20, completed frame 2a in the following way: *Last year, I chose to take this particular class mainly because “...I thought it would be interesting if I could have deep knowledge on current affairs and talk about what I learn in the class to my friends abroad.”* This was interpreted as showing positive expression of *joyous exploration* in having interest in “deep knowledge” from the subject, which is inherently transnational in nature, thus implying *IP-knowledge*. *IP-knowledge* also manifested in other frames for her, like in 1f where she had positively described her classmates as being, “...enthusiastic to learn not only English skills but also worldwide problems...” Here there is overlap in that the *IP-knowledge* label also contains an element of discussing transnational issues, while her frame 2a also indicated *IP-interaction* with her talking about what she learns with “friends abroad,” also strongly implying *knowledge exchange* through dialogue. Individually she had one of the highest counts (7) for *knowledge exchange* across her narrative. Imagining conversations beyond school suggests the topics we study making a *connection to her-self*-image outside of class. Another *connection to self* was explicitly highlighted later in frame 4b where she explained she would study “...international politics in university and it [the class] directly connects to what I will study in the future.”

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Table 6. RQ 1(b) Sub-theme Counts:

Developing Critical Thinking Skills (CTS)	+	-	Total
Sufficiency and accretion of <i>background knowledge</i> (<u>remembering</u>)	30	16	46
Assimilating perspectives and developing <u>understanding</u>	71	13	84
Making and answering salient <i>questions</i> (<u>understanding</u>)	19	6	25
<i>Research</i> skill practice (<u>understanding/applying</u>)	30	9	39
Skepticism, disagreeing and persuasion (<u>applying</u>)	9	4	13
Reflection and <u>analysing</u> (focusing, refining, organising, etc)	55	5	60
Judging and <u>evaluating</u> information	21	6	27
Synthesising of viewpoints and <u>creating</u> own opinion (for presentation)	44	12	56
Totals:	278	71	349

Note: ‘+’ = positive/neutral expression, ‘-’ = negative expression.

Table 6 shows the sub-themes on student perceptions of ‘Developing CTS.’ While it should be emphasized that it is not an exact match, there is an approximate surjective mapping onto Anderson & Krathwohl’s (2001) descriptions of the revised taxonomic educational categories; knowledge (remembering), understanding, applying, analysing, evaluating and creating. Perhaps unsurprisingly, as they emerge from the same reflective essays, there is evidence of triangulation for the Table 3 correlation between student’s ratings of their interest levels and their perceptions of using CTS ($\tau = .41^{**}$) in that a τ correlation analysis between individuals’ overall theme count totals for C&I and CTS showed a comparative

correlation of .47**. This at least suggests a relative consistency between the ratings students gave (in 3g & 3i) and the frequency with which these themes emerged together in their narratives. In this sense, the following analysis examples are fairly typical in showing common co-arising of C&I and CTS together.

For sentence frame 2b Mia wrote, Now we have almost finished, my biggest *impression of this class was that...* “...it was really difficult to think about issues in the world. The more I considered them deeply, the more I struggled to find the answer or solutions for them.” This implies negative C&I sub-themes of *IP-knowledge* and a mildly negative indication of *stress tolerance*— i.e., stress sensitivity — in that wide-reaching international issues can be stressfully complex, “really difficult.” In terms of CTS, although she used the word “find,” this suggests divergent-convergent production (Runco, 2010) in *creating*— i.e., producing a range of possibilities which are reduced down to finally “...find... ...answers or solutions.” Later in frame 2f, Mia stated the most challenging thing was explaining her “...opinion logically and persuasively, for example, the way to use pictures or graphs, and the order of them are very important to give clear and detailed clarifications.” This is a positive example of *analysing* the organisation of her information, *evaluating* which information is best, then persuasively *applying* that information through her presentation; ultimately *creating* it— “...putting elements together to form a coherent or functional whole (Anderson & Krathwohl, 2001, p.63).” Also, to find appropriate additional information, which she used in all her presentations, requires *research* skills. *Research* skills connotes both a deepening of understanding on the topics we studied (in interpreting data, instantiating, etc), but also execution of the

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research process itself, so maps onto two taxonomic categories of understanding and applying.

The average results in Table 2 from rating scale 3i suggested most students perceived themselves as using and improving their CTS. This was mostly reflected in the narratives also. In contrast, Miko, indicated in 3i that she was *not really able to* use or improve her CTS. She explained (3j), “I think I used critical thinking less often because I often used and trusted information and opinions from the Internet, for example I always used the graphs and indicators without much doubt about that thing.” Here negatively expressing *research* skill practice and a lack of *applying* skepticism. It seems that contextually appropriate stances of skepticism, along with the activities of effectively disagreeing or persuading, are developed through and need, not merely knowledge and understanding, but application in practice. Hence, their taxonomic categorisation of *applying*. What is interesting here, however, is the contradiction in the sentiment of not being skeptical enough, yet also holding an awareness that it should be contextually applied in *research*. Two other students expressed analogous contradictory sentiments. Additionally, looking at the mean rating scale averages in Table 2, of all the positive leaning results, 3i (not able ~ able to use CTS = 4.41) was the lowest and had essentially zero correlation to actual CTS score in Table 3. To speculate, those contradictions and low averages in appraising self-development in CTS could be cultural in origin due to the importance put on *kenkyo* (humility) in Japanese culture. For many it often feels safer to express a lack of ability even when one may be highly skilled.

For Sachiko in sentence frame 2e, *the worst moment/thing about*

this class was:

“...during we were staying home, Oli [the teacher] gave us information about capitalism, and I should have to research and decide my own opinions, but I couldn’t find enough information from internet and I was very confused and my presentation was really terrible.”

This references the challenging aspect forced upon the class in the period of online study we had to adapt to at the beginning of the academic year with our first topic on the merits and problems of capitalism. Here are negative C&I sub-themes of unresolved *deprivation sensitivity* in unsuccessfully looking for information to alleviate her knowledge gaps, while the overall topic left her feeling “confused” suggesting negative *stress tolerance*. Regarding CTS, she expresses dissatisfaction here with her *background knowledge*, *research* and *evaluating*. She earlier highlighted her biggest impression of the class as “stressful” in sentence 2b where she faced difficulties partly because of “...lack of my information,” (*background knowledge*). There were, therefore, knock-on difficulties in *researching* the complex topic of capitalism and in *evaluating* the information for “deciding” which to use. Unfortunately, ‘capitalism’ described as being stressfully complex was a common refrain with ten other students in frame 3f expressing concurring reasons for its selection as the least interesting topic. Just before studies commenced, I elected to begin things with this topic reasoning that, while any kind of overview of the pandemic was not feasible at that stage, the immediate economic effects within the global capitalist system (job losses, food bank queues, plummeting markets, etc) were very germane. In retrospect, despite its relevance, it was clearly too

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complex for many as a first topic— especially given the unavailability of our normal process of face-to-face, collaborative understanding that would potentially have made things less confusing.

In a final, longer, vignette expressing a more mixed positive/negative experience, Yoshimi gave advice to next year's students in frame 4a as, "...ask questions and do research to eliminate what you don't understand, and share your opinions with your friends before make a presentation, and do present with confidence." This implies the CTS aspects of *research* practice and working up to *creating* an opinion for presentation, as well as *making questions*. Across the whole class analysis the CTS sub-theme *making questions* was interpreted as co-arising across individuals' single frames in seven out of the eleven discernments of (C&I) *deprivation sensitivity*, which appears here in a positive sense, and illustrative of their connection in that questions can "...eliminate what you don't understand." We can also see *knowledge exchange* with others, which can help with *stress tolerance* on the way to *creating* presentations on complex topics with confidence. This excerpt also highlights two main sub-themes of the 'studying and developing English skills' theme in Table 4, which were improving 'discussion' and 'presentation' skills. Another theme from Table 4, 'personal achievement and growth' also connects here through an important sub-theme for Yoshimi (and others), 'the importance of confidence.' In frame 1f she said she had liked English before entering our program, but over three years had lost confidence. In frame 2e she articulated low confidence in presenting her opinion, and in frame 3g rated the class as *slightly boring* because she felt she couldn't express herself well "...or get

much of a positive response from my friends about my opinions.” This appears to connect to the Table 3 correlation of TOEIC score (hers was in the class’s lower quartile) and level of ease of the class— her (2d) rating was that current affairs was (1) *far too* [= very] *difficult* (see Figure 1, note^b). Further connecting to language challenges, in choosing A.I. as the least interesting topic in frame 3f she gave the only negative instantiation of *CiES* because there were “...many mechanical and technical words.”

Conversely, in frame 3b Yoshimi chose the free topic as most interesting because “...my friends in the same group praised me for the content [on COVID-19’s effects on professional sports]— they said, ‘Your presentation was interesting.’” Through a personal interest in baseball, this *connected to her-self*, as did Yoshimi’s view in frame 4b in that she could imagine the skills developed in this class as being useful in her university studies. She showed another sub-theme of ‘personal achievement and growth’ labelled ‘positive personal development’ in frame 2b where she reported that the class had, “...given me the ability to think in many different directions.” Then in frame 3i she expressed being *kind of able to use and improve* her CTS because (3j), “...I have become more objective than before, have my own opinion, gather materials to support it, and communicate it.” In the last frame, she said she found the narrative reflection useful because, “...looking back on what I had done for the past year, I felt proud of myself and it gave me a chance to continue to work hard.”

Three Primary Points of Evolution

In our final class, I could ask individuals follow-up questions (on

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paper). I had also processed the initial quantitative data, which indicated two main questions for small group discussions, on which they took notes. Firstly, voted as the least interesting topic, should capitalism be kept or changed? The main answer from the groups was that it is an inherently wide, complex topic and its difficulty was only compounded by being the very first one studied online, alone. However, to quote one group's notes, "The economy is important to learn." Though not everyone expressed enjoying it, three people had still chosen capitalism as their most interesting topic. When given a vote, a majority endorsed its value as a later topic.

As Barkhuizen (2008, p. 232) puts it, in constructing and sharing stories, "Narrative inquiry is reflective inquiry." As a teacher, I felt the reflective process of narrative creation was beneficial CTS practice in itself. The rating scale responses (Table 2, 4c) were lukewarm regarding how useful students found this assignment (Median = 4, *kind of useful*), though, in their reasons given, 15 out of 23 stated it was useful to "look back" and/or "reflect" on what they had accomplished in the class, so the second question for group consideration was; would this narrative task benefit future classes? The response was mixed— some for, some against. The main reasons against were that January is a busy time for many students who may not yet have passed ongoing university entrance exams, and even with allotted class time it felt time consuming. As a researcher, I also must concur— with the full analysis process taking time often not easy to find in a busy teaching schedule. We very likely won't have such pandemic schedule disruptions again, so this task is to be modified into a more *knowledge exchange* discussion form with narratives emerging through dialogue and group

reflection.

RQ2 - Evolution Summary: A) Capitalism (nor anything so relatively complex) should not be the first topic. In the case the topics remain unchanged, gender equality was proposed by some groups as a more appropriate introductory topic given their familiarity with it from it being touched upon in other classes, and its economic implications mean capitalism could be a useful later, connected topic.

B) Despite emphasising in the literature review the role of *evaluating* in CTS, it had a relatively low sub-theme count (Table 6) while students, such as Sachiko, expressed its challenge in their narratives. All the students do focus on evaluating the merits of both sources of information and also argumentation in a separate ‘Introduction to CTS’ class (taught by me, an hour a week— covering skepticism, etc, in more depth), but not until later in the second term. I intend therefore, to prepare an additional handout explaining a series of questions by which to evaluate and analyse all the information they research (e.g., relevance? effect? publication date? trusted source? etc,) to go with the syllabus at the beginning of the year— this could further clarify CTS for the students and help them better perceive their actual use of it. I also got permission from the students to select some of their advice for future students from frame 4a to be presented in anonymous form as guidance on the syllabus paper.

C) The reflective narrative frame task’s basic form is to be adjusted:
 i) Parts of paragraph one will be cut or reintegrated as some described it as somewhat superfluous for reviewing and evaluating this class. ii) Given the relatively high count of *knowledge exchange*

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in Table 5, narratives are to be constructed together through explicit, focused group-dialogues with individuals taking notes (on a handout with a pre-structured format) to be collected on their perspectives, rather than having to write out and submit a potentially time-consuming essay. iii) The notes can then be combined with rating scales and subject rankings to be filled in online.

Limitations & Conclusion

Limitations

There is a particular challenge of thorough qualitative analysis on multiple participants' data working as an individual researcher. While I have confidence that my interpretations were at least reasoned and cogent from my perspective, it would have been beneficial to have had discussion and converged on consensus interpretations with others in collaboration, which may have also helped reduce the time needed for interpretation— though having gone through the process once already, it should now become a more efficient process in any subsequent evaluations. Even so, the results from these particular students may not be replicated in subsequent cohorts (or in other contexts).

It should be pointed out that the 5DCR constructs (joyous exploration, stress tolerance and deprivation sensitivity) are described by Kashdan et al. (2020) as “trait-like.” It is therefore a valid question as to whether anything “trait-like” could be inferred from a single sentence instantiation in a narrative. Nonetheless, as discussed in Smith (2021, p. 204) curiosity & interest have strong state-trait interrelationships. For students expressing their affective experience, interpretations in an individual's narrative (and their frequency) may

at least indicate construct salience—— the salience of particular state (and not excluding suggestions of trait) flavours of curiosity & interest perceived as having arisen in the context of the class through the remembering-self.

The pandemic disruptions afforded the class extra time with rich data produced for analysis. Even so, echoing a point brought up by Steyn et al. (2018, p. 21), “...qualitative course evaluations present challenges from both a time and resource perspective.” Returning to normal schedules, a more streamlined version of this task will be employed in future, though the core will remain.

Conclusion

The above limitations notwithstanding, the primary goal of this MMR study was to investigate whether two key class aims were met in that students should feel curiosity & interest and perceive that they could practice and develop their critical thinking skills. Overall, considering both the statistical and narrative data, the analyses suggest those aims were largely realised—— though with a range of individual differences expressed and not uniformly positive. There is room for marginal gains as outlined by the proposed evolutions above. Though it is designed to be a challenging, demanding EAP class, I feel this evaluation process has also increased my awareness of and sensitivity to the students’ difficulties, which should only help my in-class guidance for individuals.

In terms of the wider implications of this research, as Josselson (2011, pp. 238-239) suggests, “...narrative research offers the possibility of exploring nuances and interrelationships among aspects of experience that the reader might apply to better understand other

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related situations.” Thus, the educational psychology constructs through which student learning experiences have been analysed in this study— namely, species of curiosity & interest along with viewing CTS through the taxonomy of educational objectives — could be applied in other forms of research and/or in other EAP/EFL contexts, at secondary or tertiary level.

This study additionally adds to the field in terms of testing out Hiratsuka’s (2018) conjecture that the narrative frame method can be augmented with other research methods with an MMR design combining the power of narrative and statistical analyses— the particular form of which used here seeming to have had no clear prior example. Perhaps the most significant single inference coming from both the qualitative and quantitative analyses in this study is the apparent link between *feelings* of curiosity & interest and *perceptions* of using CTS. This was exemplified by the *knowledge exchange* sub-theme, which, though classified within the theme of curiosity & interest, seems to sit near its intersection with CTS. With high value in potential support of engagement and mastery, the relationship between these feelings and perceptions, and how students are interested in learning from each other through dialogue in applying CTS, warrants further exploration in other EAP contexts.

Finally, Onwuegbuzie & Johnson (2006, p. 59) ask a germane, fundamental question of the inferences drawn from MMR studies; to what extent is the whole greater than the sum of its parts? In terms of the appropriateness of this form of investigation, the methodological eclecticism applied fit the context and purpose of the study and gave added value in that through the statistics I could see the collective, through the narratives I could see individual experiences, and in

combining them together, I had a superior view of my class compared to using either method alone.

Ethics Consent & Approval

This study was approved by the program head and school authorities. Participants received both verbal and written explanations of the study's purpose and possible use of data or quotations with anonymity guaranteed. Informed, written consent was received before data collection. Though all participants were 18 at the time, an explanation letter was sent to all guardians by the school with the option of withdrawal of consent at any time.

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