What are the pupil perceptions of flipped learning for A-level Economics?

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A Research & Development Project

Submitted for the MSc in Learning & Teaching 2022

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Abstract

The purpose of this research was to explore pupils' perceptions and insights regarding flipped learning in secondary school A-level Economics classes. Data were collected via a survey of 83 pupils who had experienced either two or five terms of flipped learning. This was followed up with focus group discussions with half the pupils. The results yielded a generally neutral stance to flipped learning and did indicate that pupils found the workload increased, particularly with the note making and reading outside class. They generally liked a variety of activities in class, although there was not a consensus regarding which activities were preferred. There were concerns expressed, by pupils, about a lack of variety of classroom activities on offer. Therefore, the flipped learning concept was not particularly an issue. Further focus on the way the classroom is utilised will enhance the depth, richness and rigour of the learning experience for pupils.

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"*Tell me and I forget, teach me and I may remember, involve me and I learn*"
attributed to Benjamin Franklin

Introduction

The focus of this practitioner research project is to attempt to understand the student perceptions of the use of a flipped classroom in the context of A-level Economics classes. The school where the research has been undertaken is an inner-city independent school, that is highly selective on the basis of previous academic achievement. As such, the school actively seeks and appeals to pupils (and their parents) who have high academic ambitions for both A-level and beyond at university. Therefore, the outcome, in terms of A-level results, is that the grades for most pupils for most subjects is predominantly in the range of A - A*.

My part two assignment for the Masters of Learning and Teaching course sought to investigate links between flipped learning and whether it resulted in increased pupil motivation given that the structure of the course became richer and more engaging through improved use of class time. This research project is intended to follow the effects of flipped learning further to understand how the flipped learning model and its requirements are perceived by pupils.

I introduced flipped learning into my classes three years ago to increase the challenge provided to pupils within the classroom. To some extent, high academic achievement is implicit in the school intake. Flipped learning could therefore be used to enable the pupils to have a richer, more interesting and academically more challenging experience

in Economics classes. Therefore, rather than spend a significant proportion of their classroom time passively listening to the teacher, making notes and generally coasting, the idea was to engage pupils with a richer classroom experience resulting in pupils being far more actively engaged in problem solving and critical thinking. This notion fits within Bloom's Taxonomy as higher order thinking (that is to say the analysis, application and evaluation levels). The note making elements would, I suggest, fall in the realm of Bloom's lower order thinking skills (namely knowledge and understanding) and could be successfully completed as homework. This approach would free up class time for higher order exercises with the aim of better academic outcomes.

Another factor which prompted the move to the flipped classroom was preparation for university and development of skills that would help them succeed there. The majority of pupils from the school will go on to pursue a university education. The habits of pre-reading and preparation for new topics should give an improved outcome and experience of lectures and tutorials and therefore continue to help pupils to achieve their potential. There is a growing and wider acknowledgement, especially in places of higher education, that flipped learning is not only beneficial to academic outcomes, but also causes increased satisfaction in the academic and learning experience for the pupils.

Additionally, flipped learning can be used as a means to allow more effective use of classroom time than for activities that pupils are able to undertake and complete without the help of teacher or peers. Therefore, it becomes the means by which an active classroom can be introduced. Pupil timetables for each A-level class for each

subject area is between 120 and 160 minutes per week. If new concepts are being taught in these classes, little time is left for pupils to explore and encourage greater learning and exploration in the subject.

A critical review of the literature

As an approach to learning and teaching, the concept of flipped learning (also known as the inverted classroom or the flipped classroom) is one that is relatively recent and often attributed to Lage, et. al. (2000). It has gained increased interest and popularity in recent years. Whilst there are numerous research papers on the use of flipped learning in post-secondary education, for example: Chung and Lee (2018), Calimeris and Sauer (2015), Gianoni-Capenakas (2019), Jian (2019), Strayer (2012), Vazquez and Chiang (2015), less has been researched and written about the use of flipped learning in secondary schools (and for younger pupils). Additionally, Roehling, et al. (2017:183) notes that "… the research on the flipped classroom in a content heavy social science course is minimal and contradictory." Instead, much of the research on flipped learning has taken place in the sciences.

Definition of flipped learning

The Flipped Learning Network (2022) define flipped learning as:

"A pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter."

The Flipped Learning Network (2022) distinguishes between flipped learning and the flipped classroom, making the distinction that flipped learning will include moving the instruction away from the teacher, as the principal provider of information, towards the pupils. Class time is utilised, by pupils, to actively engage in the exploration of relevant topics at a deeper level than for a teacher led class. The teacher supports pupils with the activities, making them accessible to all, providing differentiation as required. Bergmann (as quoted in Roux and Nagel, 2018:p8) further refined the definition of flipped learning to include the place where learning activities occur: (i) homework occurs in "individual learning spaces", where pupils study independently and (ii) face to face activities with the teacher which occurs in "group spaces".

The instructional content is curated by the teacher: what should be read, watched or listened to by pupils outside (and in preparation for) class time. The intention is that this content is sufficient to enable more time in class for pupil centred active learning. The teacher's role is therefore to facilitate and guide activities in the classroom; providing assistance and support to individuals and small groups of pupils as required. (Flipped Learning Network, 2022, Bergmann and Sams, 2012, Teng, 2017). This allows learning to be tailored to the learning needs of pupils in the classroom, which will differ on a class-by-class basis. (Chung & Lee (2018)). An important distinction here is that it is the order of activities that defines flipped learning rather than the activities themselves. The background knowledge acquisition is done outside the classroom, at home, (for example, Van Pham, 2021) whilst knowledge development and expansion is carried out in the classroom. Compare this with what Teng, 2017 is suggesting where the choice of pre-learning material, in this case videos, designates flipped learning, whilst use of the

textbook designates a traditional approach. Success with flipped learning classrooms will only occur if pupils study the content away from the classroom, prior to any classroom activities (Van Pham, 2021), so the teacher is free from having to deliver content.

Compare this with a "traditional" style of classroom where pupils listen to the teacher to receive information. The teacher is responsible for delivering the content and will therefore take the burden of thinking and working, whilst the pupils will have a more passive role in listening and making notes. (Marzano, R., & Toth, M., 2014). Marzano, R., & Toth, M. (2014) go on further to imply that these types of classes are places where there is less room for discussion and dissent, with greater focus on compliance and less on developing independent learning skills. The cost (issue) with this means that there is a lack of depth in learning. Therefore, pupils are unable to successfully use the knowledge acquired to obtain greater depth and understanding of the subject matter in the context of problem solving. For this research project, this means applying theoretical economic knowledge to solve economic problems.

Reasons for undertaking the research

I have been running all my year 12 and year 13 Economics classes using flipped methodology since the start of the academic year 2018-19. The key reason for this was, with reference to Bloom's Taxonomy. Given that there is a limited time available in classes (in the region of 120 - 160 minutes maximum per week) there is a trade-off for any activity which takes place in the class. Therefore, the best use of time will maximise

engagement and progression of pupils. Bloom's Taxonomy suggests a solution: higher order activities should increase the value of time in class, where pupils have support from their teacher and other pupils. Bergmann & Sams (2012), who popularised flipped learning via their book, suggest that it was Bloom who promoted the notion of "Mastery learning". Pupils learn at their own pace through a series of objectives – one objective must be completed before another, as the first is a requisite for success of those objectives that follow. The purpose of this research project is to attempt to discern whether pupils consider the nature of flipped learning, and its consequential (explain this) classroom activities are worthwhile and useful means of learning (Roach, 2014). The research, whilst looking at pupil preferences is not intended to find out what pupils like best, but rather, what enables pupils to learn most effectively (and why). Doménech-Betoret et al., (2017) state that pupil satisfaction is one of two factors that are key factors in educational quality, the other being achievement.

Lage, Platt and Treglia, (2000) suggest that it is difficult to accommodate all learning styles into lessons, given the limited time available and can incorporate a variety of learning styles with the use of flipped learning. Although the notion of learning styles has been discredited by other studies (such as Newton & Miah, 2017 and Rohrer and Pashler, 2012), there is still a sense, held by many in the teaching profession and by pupils, that learners will have preferred learning styles. Furthermore, they suggest that the method of teaching will impact the level of engagement in the subject. Whilst the study relied on the (now discredited, refer to Hensher, 2018) Myers Briggs measure of personality types, there is a wider issue at stake with regards to teaching and learning

styles and pupil engagement. For example, Hwang and Jin, (2016) found that pupils benefited from autonomy-supportive teaching rather than controlling. They suggest that rather than try to match up learning styles with teaching styles (something that could be considerably difficult to achieve), that an autonomy-supportive approach will increase pupil engagement and motivation. Ryan and Deci, (2000) suggest that intrinsic motivation will be increased if people are allowed a greater level of autonomy. They coin the term "autonomy supportive" for teachers who allow students greater autonomy in their learning than "controlling" – this also results in greater levels of inquisitiveness and willingness to be challenged (Ryan & Deci, 2000). Compare this with a controlling approach where there is a loss of effective learning and initiative. This appears to be particularly important in a conceptual subject, such as economics.

Reasons for flipping the classroom

Thus, a compelling reason for running the flipped classroom for A-level Economics is the need to set the subject in context. Those pupils that have the broadest and greatest set of "real world" material can understand and explain in essays, using examples, what they have learned. Molnar (2017) states that it is vital for pupils to apply concepts to solve real world problems. The constructionist approach to learning indicates that people will absorb (construct) knowledge more effectively if the content is relatable and meaningful to them (Molnar, 2017).

Arievitch (2020) picks up that theme, stating that for children to learn effectively they need to learn the reason for learning something. He compares this to animal training, where an animal is taught to respond in a particular way without explanation as to why

it should behave in that way. This is not merely being told why something is important to learning but ensuring that pupils can understand and make sense of the reasons. This requires a teacher who can facilitate this and has empathy for pupils and their learning. He goes on to state that this is why computers cannot provide the requisite guidance and support.

The original reason for introducing flipped learning was centred around Bloom's Taxonomy with its progression from knowledge, comprehension through to application and understanding, synthesis and evaluation (Zwodzdiak-Meyers and Capel, 2009). Bloom's Taxonomy states that the lower levels of knowledge and comprehension are the easiest parts of subject matter to acquire, requiring the least processing and cognitive overhead. Therefore, pupils achieve the lower-level learning (that of knowledge comprehension and information accumulation) in their own time and pace (at home or in study periods at school) with the higher order learning (involving application, analysis and evaluation of knowledge) taking place in the (now) flipped classroom (Lambach & Kärger, 2021, Stoltzfus, 2016).

However, Arievitch (2020) suggests that this implies limitations in pupils' thinking. He suggests that the main aim for teachers should be to help pupils develop their problem solving and thinking skills and that authentic understanding can only come about with problem solving and application of knowledge. Therefore, Arievitch (2020) argues that the idea of learning before class is a flawed one. Stoltzfus (2016) picks up this theme stating that the very problem with lectures, which is to convey information and knowledge to students, is the same one that will occur if students are given videos to

watch prior to class. The problem occurs due to the difficulty (either in lectures or when students watch the videos of lectures) of establishing if students are engaged at an intellectual level with the content. The pace of delivery and the format of the delivery is set by the teacher; the student is a passive observer. As the lecture progresses, student attention will wane and there is unlikely to be much to encourage higher level (Bloom's) or critical thinking. Stoltzfus (2016) helpfully suggests that learning will be more active if students use a textbook. This results in a greater level of active learning and for the student (rather than the teacher) to set the pace of learning.

Bruehler (2018) notes that research literature does not provide defence for the hierarchical nature of Bloom's taxonomy. Bruehler's (2018) research found a lack of correlation between the knowledge acquisition stage and the application stage. Whilst Bloom's Taxonomy, as suggested by Arievitch (2020), might be problematic in its computational or mechanistic view of cognition (ie. one of information processing), the concept of flipped learning is still supported. This is due to the importance that Arievitch (2020) attaches to the results of the application (problem solving) layer of Bloom's Taxonomy. It is in this layer that authentic understanding is the result rather than the precursor of problem solving. Hence all levels of learning are integrated via problem solving. Therefore, even despite Bloom's Taxonomy being potentially discredited in this way, the validity of the flipped learning approach, to increase use of class time for problem solving (Bloom's application and analysis levels) is still justified if the class time focusses on development of problem-solving skills for the particular subject or topic being studied.

Arievitch (2020) also criticises Bloom's Taxonomy for not including any aspect of motivation, which is not considered in the model. Motivation is, argues Arievitch (2020), an essential part of learning (and therefore should be an integral part of a model of learning). It could be anticipated that motivation would increase in a flipped learning environment, particularly due to increased pupil autonomy and control over their learning (Abeysekera and Dawson, 2015, Kellogg, 2013). However, Dixon (2020) argues that this is inconclusive in a secondary school setting. Literature and research shows similar motivation levels when comparing the traditional class room to that of the flipped learning one.

As written essays constitute in excess of 50% of the marks in an A-level Economics exam (Pearson, 2022), those pupils with a strong contextual understanding will fare better in these types of questions. However, the use of contextual understanding should be seen as more than merely passing exams – the contextual material gives texture and meaning to the subject, and this should mean that, for many pupils, their enjoyment of the subject should increase, for example, the relevance of using CALL in language learning (Teng, 2017).

Another reason to flip a classroom is the idea of increasing rigour in learning. Marzano and Toth (2014:16) define rigour as:

"As part of this clear progression of learning, students need more opportunities to apply their knowledge and make inferences based on what they are learning. The shift to rigorous standards also requires students to make and defend claims with sound evidence including grounds, backing, and qualifiers as part of utilizing the knowledge they acquire…."

Marzano and Toth (2014) suggest that in US secondary schools, the majority of classroom time was taken by teachers teaching new material (58 percent of time), whilst less than six percent of the time was spent on higher order, cognitively complex tasks that included postulation of theory and use of data and information to support their argument. The remaining 36 percent of the time was spent developing pupil understanding of the new content through practice and rehearsal. Marzano and Toth (2014) advocate that it is vital that learning becomes driven by the pupils, engaging in rigorous tasks that develop their ability to become self-sufficient and confident in solving complex tasks. This will require tasks that encourage pupils to build on knowledge such as collaboration with other pupils to enable the development of problem-solving skills. These skills which require pupils to work with higher order thinking skills (for example, Bloom's analysis and evaluation levels) with little direction and guidance from the teacher. Kellogg (2013) advocates that the flipped classroom style of learning and teaching can, if well-designed, lead to improved learning and greater theoretical understanding.

Asarta and Schmidt (2017) advocate that students (in a university, economics and business statistics course) with higher previous academic achievement, perform better with flipped learning than those with lower achievement, whose results fared better in the traditional classroom.

Constructivists, such as Piaget (Campbell, 2009) and Vygotsky (1978) postulate that pupils construct meaningful knowledge. Jensen, et. al. (2014), developing the

constructivist approach suggests that teaching consists of a stage where pupils gain a conceptual understanding of the material and a second stage where the conceptual knowledge can be applied and evaluated. The second stage therefore broadening and build on the first stage. Jensen et. al. (2014) refer to these as the "content attainment phase" and the "concept application phase" respectively. Thus, in the flipped classroom model the instructor is responsible for facilitating the concept application, whilst the learner takes responsibility for the content attainment phase.

Yet another reason for flipping the classroom is to improve the efficacy of homework. Ofsted in the past has stated the need for:

"*… appropriate and regular homework contributes very well to pupils' learning … marking and feedback from teachers … enables pupils to understand how to improve their work, encouraging high levels of engagement and interest*". (Garnett and Beadle, 2012).

Creasy (2014) suggests that the term "homework" covers a broad range of tasks and that it is difficult for teachers to provide work that is differentiated and is of sufficient quality on a regular basis. Pupils may lack adequate support at home to complete the work to a reasonable standard. This last point may result in a focus of task completion (for example cut and paste from an internet source) rather than the quality of learning that might result from the homework. This is particularly an issue if the pupil has only learnt the relevant information recently and has not understood the topic properly or has not understood the purpose and standard of homework required. (Wallace & Kirkman, 2014, Lambach and Kärger, 2021). There is always a lag between homework submission and feedback. This can be quite long where lengthy essays are submitted,

such as those required for an Economics A-level. In the flipped classroom, some feedback (although not all) can be provided in real time – sufficient at least to provide the pupil with guidance for the work to be completed (Lambach and Kärger, 2021).

Perhaps one of the more minor reasons for flipping the classroom is related to pupil ownership and motivation of learning. Pupils can set the amount of time that they spend on the new material to be studied (before working on it in class). In some cases, the knowledge acquisition phase will be longer or shorter depending on how long the pupil takes to understand what they need to learn (Lambach and Kärger, 2021). As I provide pupils with a schedule of what needs to be learned, by due date, this affords pupils a high degree of autonomy about how they arrange their time. This gives pupils the control (up to the deadline) over when and how much time they spend at the knowledge acquisition stage (Breivik, 2015). This is expected to increase a sense of autonomy and consequently an increase in pupil motivation. (Abeysekera and Dawson, 2015, Kellogg, 2013).

Last, but not least, as the flipped learning classroom increases pupil activity and practical engagement (ie. pupils working on actively applying, analysing or evaluating knowledge) there is less passive involvement in class. This will (hopefully) provide a more engaging and interesting classroom environment for pupils (Lambach and Kärger, 2021).

Criticisms of flipped learning

Setting up flipped learning by teachers for their classes, has a potentially large overhead cost in terms of time and effort (Hilary Ka Yan Ng & Paul Lam, 2020, Hall and DuFrene, 2016, Kellogg, 2013) required to create resources, schedules and new sets of working practices. Resources such as videos or multi-media instruction material need to be produced, as do activities for the classroom. These will need to be reviewed and monitored on a regular basis.

If pupils do not complete the requisite homework and preparation for class time, they will be underprepared and potentially unable to take part in the activities provided in the class (Hall and DuFrene, 2016). Pupils require a change in mindset, as flipped learning is not commonplace in many schools and this is not always accepted particularly well. Pupils may query why class is necessary if they have already learnt the material (and may not bother with attending class where they have the option) (Kellogg, 2013).

Pupils may also feel that they have to work harder in class (which they do, as they will be working on problem solving), rather than take a more passive approach in the traditional classroom (in which other activities will be limited by the time taken by the teacher presenting the material) (Kellogg, 2013).

Ng and Lam (2020) and Van Pham (2021) suggest that there will also be a greater amount of time and effort required by pupils to ensure that they have covered the work set. They raise the question of whether increased workload either maintains (or increases learning effectiveness). By extension, this raises the question of whether the

increased effort is perceived by pupils (and/or teachers) as worthwhile. Ng and Lam (2020) postulated the notion of the number of flipped lessons being used and if an insufficient number are included then the use of the classroom as an opportunity for problem solving and tutorial type learning will be limited. There will be lower levels of pupil autonomy in how they structure their learning (outside the classroom).

Roehling, et. al. (2017) states that there are a number of potential shortcomings with the flipped (out of class) activities. These include difficulty in engaging with recorded lectures, particularly if other distractions occur (that would not be present in the classroom – these are particularly relevant for secondary school pupils, as many distractions (such as mobile phones, internet access) will be removed from a well-managed classroom. Jensen's (2011) research shows a student preference for lectures, due to the controlled setting and the interaction with the lecturer, which helped students maintain focus – something that they found more difficult with online and pre-recorded lectures. Additionally, the immediacy of having a teacher present to answer questions that arise from the lecture is missing. Finally, some students are unable to organise their time and study sufficiently which will impact the efficacy of the knowledge and understanding phase of their learning. Van Doorn (2014) links learning performance with enjoyment of the class, arising from the proficiency of the teacher and the collective strength of the classroom environment. Van Doorn (2014) also makes the point that students may need to develop learning skills, which come through the classroom and may not be sufficiently developed for those taking out of class learning (such as for a flipped learning environment).

Jansen, et. al (2014) make the point that flipped learning is not directly comparable to the traditional classroom approach due to the alteration of many other changes to variables in the way pupils learn and in teaching methods utilised. They suggest that positive outcomes for the flipped learning model are related to the change or addition of other teaching materials, the increased use of technology and the greater use of collaborative working practices in the classroom.

Some researchers (including Jensen, et. al., 2014) suggest that benefits gained from flipped learning (or a flipped classroom) are merely the result of active learning. Indeed, Van Pham (2021a) describes flipped learning as a component of an active learning strategy. Studies (for example, Bergtrom, 2011 and Strayer, 2012) compared the outcome of lectures (where students are passive and there is little interaction) with on-line content delivery. Whilst the assessment outcomes were no different, students expressed a preference for the method using online content. Jensen, et. al. (2014) researched two groups of university students, with one condition presenting them with course content in class (non-flipped approach) and requiring an assignment to be complete outside class, as homework. In the other condition (flipped approach) students had to use technology before class to gain content knowledge, with the assignment being completed in class. In each case the assignments set were identical in their requirements and necessitated the knowledge learned in class (non-flipped) and before class (flipped) to be applied and used for problem solving. For both conditions, students had noted that the active learning activities in class were enjoyed and, as these predominated in the flipped learning class this resulted in a greater positive response

from students in those classes. Jensen et. al. (2014) observed similar outcomes as that of Bergtrom (2011) in that students performed equally well in final exams for both high level (analytical, evaluative) and low level (knowledge and content) questions.

Van Pham (2021) found that students valued video lectures more highly than lectures in the classroom – this component allows students to work at differing rates of understanding than in a classroom where the lecturer sets the pace of content delivery. In addition, Van Pham (2021) found that flipped learning increased student motivation and willingness to interact with the teacher and others in class and in doing so, suggested that the flipped classroom is more effective and can result in greater depth of understanding and faster learning that in a traditional classroom (based on students' perceptions). Van Pham's (2021) data suggests that this is likely to be due to the increased student activity and ownership of learning in class (rather than a passive recipient of content delivered by a teacher) and the increased use of activities that related to application and analysis of the material for problem solving.

However, researchers (Strayer 2012) have found that pupils in a flipped classroom valued collaboration and greater use of technology and innovation in teaching; and they expressed a reduction in satisfaction in the way classroom time was used.

Methodology

Nature of interventions

The research undertaken was practitioner research. Apart from the original intervention, there was no subsequent change to teaching approaches during the life of this piece of research.

The intervention that was undertaken for this research was to flip all my Economics classes (year 12 and 13). This took place across all classes that I teach and has been in place since the start of the academic year 2018-19. Prior to flipping these classes were run on a more conventional approach: teaching of content took place during lessons and was delivered by the teacher from the front using presentation software, skeleton notes (headings with space provided for pupil notes below), some interactive discussion and the opportunity for questions as the lesson progressed. If there was time, in delivering the syllabus, classroom exercises were undertaken by pupils (which consisted of worksheets, problem solving and essay writing). Homework would be given, usually on a two week cycle, often consisting of an essay (two to three pages of A4) or a couple of shorter answer questions.

The need for intervention, through a change in teaching practice, was driven by spending substantial time delivering content to pupils, which often caused difficulty in completing the syllabus in the academic year. The final topics would be rushed or given to the pupils to complete at home. The logic in doing this always seemed problematic and not driven by the needs of the pupils – if they were capable in learning some topics at home, it would be better for these to be the earlier ones, where there was plenty of

time to address any issues of lack of understanding, rather than later ones which were close to exams. In addition to this, the majority of class time being taken up with content delivery seemed in contention with deep(er) learning of the subject material.

The intervention was thus: For all topics, for both year 12 and 13 Economics, a scheme of work is provided, using the wording from the exam board. Dates for completion, for each topic or sub-topic is provided, as is the page reference from the prescribed textbook (Anderton, 2015). The textbook is provided, free of charge, to all pupils at the beginning of their A-level Economics studies. Videos and other multimedia content (such as slide shows with voice over) have been identified for each topic (sources included YouTube and other content providers, such as Tutor2u). Videos were reviewed for accuracy and completeness and hyperlinks for videos are provided. (Example provided in appendix B).

The requirement is for each pupil to have completed the reading and/or watched the videos and have made notes for each topic by the required completion date. The notes can be any format; however the essential requirement is that the pupil should make notes that will be useful for classroom exercises and problem solving and for their revision for tests and exams. For the first two terms of year 12 Economics, each pupil was expected to submit notes (to the teacher) during the week that these were scheduled to be completed. The objective of this exercise was to record that the pupil had completed notes to a minimum standard, to ensure that notes were their own (i.e. evidence of having looked at the necessary course material), that they were finished in the necessary timeframe and to provide external motivation to undertake the work set.

The ethical guidelines followed for this research was that provided by the British Educational Research Association Ethical Guidelines for Educational Research, 2021. A CUREC form was submitted to the University of Oxford and approval given. Further consideration of ethical issues is discussed below.

Data collection

Two methods were used for primary data collection for this research:

1. Survey
2. Focus groups

Survey

The survey was constructed using JISC Online Surveys (2022), provided by the University of Oxford. To improve response rates for the survey, these were administered in class time online. All pupils accessed the survey via a mobile device or computer. The nature of the research was explained to pupils both verbally and via an introductory screen on the survey. The explanation included that:

1. Pupils could not be identified within the survey. Classes could be, but each class contained a minimum of eight pupils.
2. The survey was not compulsory to complete
3. Any question could be left without a response
4. To ensure complete anonymity, any pupil who didn't want to take part should not state this but merely not complete the survey (and by implication, do something else on their mobile device / computer).

Focus groups

The focus groups were run during class time. Pupils were advised that they did not have to take part and could either absent themselves from the room or stay and not contribute. In either case they could make the decision without explanation and there would be no reprisal from the teacher / researcher if they chose to do this. As the group discussions were recorded (voice recorder on a computer), pupils were asked to sign a sheet to agree to this taking place. Any pupil not willing to be recorded was free to leave the room or not say anything during the meeting.

Whilst the possibility of leaving the classroom was without reprisal, pupils may have felt some obligation to stay in case they were asked by another teacher or management why they were out of class or felt that they were missing out on something of value in class. No pupil (out of 40 year 12) took the option to be absent for the focus group discussion, although a number did sit in the meetings and not say anything. (For some this was waiting to be asked, whilst others did not want to contribute whilst being recording).

The focus groups took place two months after the surveys. This enabled the survey results to be considered as the basis for focus group discussions. For convenience, focus groups were held on a class-by-class basis, although due to other school activities these classes were smaller than usual, which made the group discussions more personal. The purpose of the focus groups was to explore particular aspects of flipped learning in more detail, with potentially a greater richness and understanding than

could be achieved via the surveys. Aspects that were included in the discussions included:

- Understanding how pupils made notes (and for what purpose)
- Classroom working – how peer and collaborative working functioned, how the teacher's role was perceived (and whether students found these ways of working useful.
- If there was any change in the quality and depth of learning that pupils thought that they had achieved.
- Practical influences on how well pupils learned (eg. The arrangement of the classroom, which was just changed prior to the focus group meetings).
- Personal or emotional factors present that might influence the way the classroom worked

Rationale of data collection methods

The approach taken for this study was to run a survey across the year 11 and year 12 cohorts of Economics pupils (see appendix A for the questions and numeric responses). The purpose of this was to extract as large amount of data from a cohort of 83 pupils as was possible. This would then enable the main themes of the study to be identified. If the sample was too small, data is likely to be biased as some classes tend to be led to a consensus of ideas (through group chat and social media) by vocal or popular pupils. Surveying the whole cohort will eliminate, to some extent, this consensus of views. The other aspect of this is that my year 13 classes have had most of their classes, with me,

over the two years at school, learning economics using flipped learning, whilst the year 12 have only had one year. This may therefore enable other themes to be discovered as pupils have become familiar with the flipped approach to learning.

An additional advantage in setting the order of the survey first, followed by focus groups, is that it allows the discussion of survey findings in the third person – participants in the focus group are not identifying themselves in holding a particular view, which may be difficult when with their peers, but instead allows a more abstract and distant argument. Participants were promised anonymity in the surveys and the large number of responses obtained mean (rightly so) that individual respondents cannot be identified. However, through the focus groups they (may have had) the opportunity to expand on ideas put forward in their survey response. This is even more important, given that pupils may have felt wary about sharing some ideas with their teacher (in his role as the researcher), who will assess their progress and write their reports.

Wilkinson (2006) distinguishes between focus groups and group interviews and observes that the facilitator of focus groups manages and encourages group discussion, with group members interacting and responding to each other. Agar and MacDonald (1995:80) suggest that a focus group is "…somewhere between a meeting and conversation." This has the potential value of producing insights that may not be expected but may be significant to the pupils in their engagement with the flipped learning process. (Agar and MacDonald, 1995). A potential disadvantage of the less

structured focus group is that it is possible (and which did occur) is that some members will dominate the talking (Agar and MacDonald, 1995). In a formalised group interview, all participants may have been asked the same questions and therefore a broader set of responses elicited.

Kvale (1996) as quoted in Cohen, L, et. al. (2018:506) suggests that the interview is a social encounter and in one scenario the interviewer is identified as a traveller, exploring an unknown place together with the interviewer. The focus group discussion, for this research, certainly fulfilled the aspect of exploring, rather than merely data-collection, which had been achieved through the survey. Hochschild in Cohen, L, et. al. (2018:506) identifies that interviews enable exploration of issues in greater depth than through surveys and will give a richer explanation and insight into data generated from surveys.

Kvale (1996) as quoted in Cohen, L, et. al. (2018:511) states that characteristics of qualitative research interviews should seek to understand how the material fits within the world of the pupil (i.e. why do pupils do what they do, given the constraints of what they have been asked to do). The purpose of the interview is therefore to elicit this and look at it in a detailed and nuanced way. Therefore, the need of the interviews to be conducted in a semi-structured approach, but open to new data and information. Morrison's (1993) notion, at the end of his third continuum, "… is to capture the uniqueness of a particular situation [or] person …"(as in quoted Cohen, L, et. al., 2018:509).

There is a need to concentrate on particular themes and ideas, as the notion of flipped learning has, at its most basic level, a narrow approach and therefore the interviews required a general sense of direction and purpose, but also enabling the focus groups to encourage and provoke insights, from pupils, about how they have learned and processed new economic concepts and ideas which might be different from other (more conventionally taught, as previously defined) classes.

Kvale (1996) (as quoted in Cohen, L, et. al., 2018:511) suggests that the interview should "*be a positive and enriching experience for all participants*". The experience, from all four focus groups, was that pupils were certainly engaged and willing participants who were eager to contribute their particular viewpoints.

Focus group recordings were transcribed (using computer software at "Transcribe.com" and then analysed for key responses, as set out in the Findings section of this report.

Collaboration

Collaboration was undertaken between the researcher and colleagues occurred in the following ways:

1. Ongoing discussion with the Head of Economics (who runs his classes in a traditional style) regarding differences in approaches and outcomes for pupils. As the Head of Department is approached with issues regarding teaching, this provided a means of identifying issues with pupil or parental concerns with flipped learning, which pupils may have felt uncomfortable discussing directly

with the author. In addition, this collaboration was valuable in providing checks as to which pupils were performing well and which that were finding the course challenging. At its most basic level, this gave some assurance that classroom and teaching approaches were not responsible for pupil performance issues. Additionally, it could be seen that pupils outcomes were not affected by style of teaching.

2. A staff inset session in January 2021 was used by the researcher to discuss the research proposal, early experiences of flipping the economics classroom and thoughts and understanding from an initial literature review. This collaboration was useful in the sense that it enabled the author to clarify the reason for the research and to be able to articulate the general approach to flipped learning and what the information that the project was expected to obtain. Unfortunately, due to COVID restrictions at the time, the session was delivered via Microsoft Teams and little interaction, or feedback was offered by those who attended. Additionally, the research was suspended until the end of 2021.
3. Discussions with a teacher in the maths department, where an active classroom has been used (but the class has not been flipped). This collaboration has proved to be useful in seeking techniques to use in an active classroom where a considerable proportion of time is spent problem solving.
4. Mentoring of a Physics teacher seeking to implement flipped learning in her classes in September 2022. As for point 2, this has proved useful in articulating what has been successful with flipped learning and what the author has found useful from the research for this project. The Physics teacher has provided some initial feedback of how some of the methods have worked for her classes.

Findings and discussion

The research was undertaken in an inner-city independent day school, which is substantively selective on an academic basis. There is a variety of ethnic backgrounds amongst pupils. Parents tend to be well educated and in professional, management or academic roles and predominantly from social strata A and B (NRS, 2022). The research was carried out with A-level pupils, who are in the age range of 16 to 18 years old. Two thirds of pupils have completed their earlier secondary education at the school, whilst one third of pupils have entered the sixth form from other schools.

Findings

The findings from both the survey and the focus groups are summarised below. It should be noted that both survey and focus group responses should be considered in the light of two years of school disruption due to government measures put in place during the pandemic. This impacted how the author normally ran the classroom (horseshoe shape desk arrangement with pupils able to see each other and discuss openly) to one where pupils were more isolated (paired desks facing the front or on-line lessons). This has had an impact on activities, particularly reducing those that are interactive, and discussion based.

Survey findings

The purpose of this practitioner research is to find out what pupils think about learning A-level Economics in a different learning structure, whether they find it beneficial (and why) and what they see as the difficulties and challenges with working in this way. The outcome of this research is to inform and enhance my teaching practice (and perhaps

that of others). The intention is to make flipped learning more effective rather than seek reasons to replace it with something else.

An important distinction in this research is between the requirements for flipped learning and the class activities that take place as a consequence of flipped learning (and therefore has the potential to be used in more conventional classroom). In order to be clear, the research is focussed on all components of flipped learning, taken as a complete methodology. (Flipped Learning Network, 2022, Bergmann and Sams, 2012, Teng, 2017)

The survey was conducted with all my classes of A-level Economics – there were 42 year 12 pupils and 23 year 13 pupils who took part. The survey was undertaken in May 2022 and hence year 12 pupils had two and a half terms of flipped learning and the year 13 pupils had five and a half terms of learning in this way. The course structure was similar for both year groups, as was the content of classroom activities. These pupils were also taught another part of the Economics syllabus by a different teacher. My teaching for half year 12 pupils is macroeconomics and the other half microeconomics. For year 13, the split is about 33 percent macroeconomics and 67 percent microeconomics. All pupils who take Economics with the me as their teacher, will have had all their teaching via flipped learning with the exception of a few year 13 pupils who were taught by a different teacher in year 12. All other teachers teach Economics in a more traditional / conventional manner. Both teach content in the classroom and assume no knowledge of the topics as the syllabus is covered.

Flipped learning has been implemented in my Economics classes with the syllabus set out in topics and sub-topics in the order they are to be taught. For each topic the relevant textbook page references are given along with video links (where available). Whilst these resources are given, pupils are free to use other materials if they wish. An example of the schedule of note requirements is shown in appendix B. There are four of these schedules (year 12 microeconomics, year 12 macroeconomics and similar for year 13) of which the pupils will be given one. For each topic / sub-topic, there is a date for the completion of notes. Pupils have the freedom to work with their own timeframes as long as they complete the relevant notes by the requisite date.

Pupils have predominantly made use of the prescribed textbook when making notes (82 percent), whilst those using videos is 42 percent.

Specific on-line help for A-level pupils featured EconPlusDal (2022) (12 percent) and Tutor2u (2022) (14 percent). Anecdotally, this outcome was surprising as many vocally complained about the textbook (for example: too much material, explanations not clear). It is encouraging that pupils have read the textbook and was part of the reason for teaching via flipped learning. Too often, prior to flipped learning, there was a perception, given by a number of pupils, that they didn't use the textbook. The textbook is one that is approved by the exam board, Pearson (Anderton, 2015), and goes into each topic in greater depth and with more contextual and example materials than can be achieved in the classroom. With the more conventional teaching, where a topic is taught in class, pupils often rely on the extent of the material covered with class,

when they may benefit from increased coverage and examples that the textbook would provide.

In respect of note taking, a little more than half (54 percent) the pupils have taken up to two months to feel that they had mastered note taking, with 85 percent feeling that they had accomplished this within six months. Of concern are the 15 percent that didn't think that they had mastered the skill by the time of the survey at nine months of studying with flipped learning. This may merely indicate a confidence issue and be related to a mismatch in understanding the requirement to have notes and to what level the pupil needs to understand the material. There was a small number of pupils (two – three) that referred to the need to teach themselves the material in survey question 16a, which has indicates a lack of understanding about the purpose of making notes out of class and the broader approach of flipped learning.

Pupils predominantly wrote notes up on paper (75 percent), whilst most of the rest used a computer or tablet (some used both). The benefits of handwriting and links to learning have been discussed with Economics pupils and this appears to be an acknowledgement, by the pupils of the advantages in these being handwritten. Another factor may be simply that this is how most are used to taking notes in class for much of their schooling.

65 percent of all pupils described themselves as very interested in Economics and would continue their studies beyond A-level, whilst another 31 percent have a general interest in the subject. Motivation levels were even higher, with 69 percent of all pupils wanting to achieve an A or A* in the subject and another 20 percent studying the subject as an opportunity to learn something new.

For 63 percent of pupils, the use of flipped learning had neither added to nor reduced motivation and interest in Economics as a subject. 11 percent had indicated that motivation and interest was increased, whilst a little over a quarter (26 percent) indicated that flipped learning had reduced their interest and motivation. Van Sickle (2016) suggests that pupil evaluation of courses were higher for traditional method of teaching rather than for a flipped environment despite the outcomes being better where flipped learning had been used. Gravestock et. al. (2008) however maintained that pupils could be considered to be both reliable and valid in their course evaluations. Therefore, whilst van Sickle (2016), showed better learning, pupils did not perceive this to be the case.

In a conventional class, following the teacher's reasoning is relatively straightforward if a good explanation is given. This translates to perceived understanding by the pupil. However, where flipped learning is used, pupils will work on problems in class and, in some cases, this will result in the need to grapple with attempting to put theoretical ideas into practice. When pupils reflect on their classroom experience, they sense a lack of understanding and discomfort with the class due to the challenges that they faced. Weimer (2012) as quoted in van Sickle (2016:34) states that learner-centred instruction "engages students in the hard messy work of learning", which might be perceived as the teacher not fulfilling her/his role as pupils perceive it to be (Bishop, Caston, King, 2014), or that the teacher does not understand the material properly.

Van Sickle (2016) also suggests that as pupils have rarely encountered this type of learning previously, which is certainly the case for my pupils. They have difficulty in

determining whether they consider the style of learning to be beneficial and how well they have learned the material. This is certainly a key factor that has come from the survey ("Has making notes for economics (outside class) caused you anxiety or worry?" (Q4) and "What do you think the greatest challenge has been for you to adapt to flipped learning?" (Q11) where 48 percent were concerned with learning the topic effectively and having notes of sufficient quality)

Another point that Van Sickle (2016) makes is that the ability to gain value from classes depends on how well the pupil has prepared outside class. There are some who responded to the survey to indicate that the notes were to fulfil a teacher requirement rather than to learn anything. For these pupils, this is likely to result in coming to a class where they have insufficient grounding in the topic to effectively take part. This point is evidenced, particularly for one year 12 group that requested textbooks in order to undertake any classroom activity, for the first two terms in my classes. The survey indicates that some pupils (26 percent) have difficulty in keeping up with writing notes outside class (Q11). Van Sickle (2016) suggests seeking effective approaches for holding pupils to account for the pre-class preparation. The method that I have taken, which potentially lacks sufficient rigour, is to request that pupils hand in notes so that I can see that this have been done. The issue here is that there is no assessment of learning or understanding and it is entirely feasible that the pupil may have copied or summarised another's notes. A better way, which encourages pupils to complete and/or revise their notes prior to a new topic, may be to require a quiz to be taken before proceeding with

further work on a topic. This was something that pupils raised in a focus group as a possible enhancement.

The interaction between teacher and pupil is a vital aspect of teaching (Boaler, 2002). Van Sickle (2016) indicates that where pupils require help less often they may have the perception that they are teaching themselves, whilst others may be reluctant to ask for help (for example, due to not having prepared properly – point iii or due to peer pressure – asking the teacher is perceived as a weakness, particularly in a school with a culture of high academic outcomes). Doménech-Betoret et al., (2017) suggest that pupil satisfaction will be explained by the expectation (by pupils) of what learning and teaching should consist of and how the classroom experience; the interaction with the teacher will be the most relevant factor.

The perceived benefits of flipped learning were somewhat muted, with no factor dominating, but includes greater productivity in classes (18 percent), already having notes prepared for exam revision (something that pupils do closer to exams in a conventional classroom) (18 percent), the ability to work on problems and questions in class (18 percent) and to have greater tailored support for this from the teacher and peers (9 percent). A proportion (12 percent) liked the idea of coming to class with some background knowledge and understanding. This was a free-form answer and pupils were not directed to choose particular options. There were a few negative responses in this section, in which pupils stated that they had not gained any benefits from flipped learning (8 percent). Missildine et. al. (2013) found that, in a study of nursing students,

that there was a reduction satisfaction with the flipped classroom compared teaching via lectures. Whilst this was not attributed directly to flipped learning, it was to the value of the approach to learning that took place in the classroom instead of lectures. Missildine et. al. (2013) suggests the reasons for this being that flipped learning requires more work from the student and a lack of discernment of value in the use of interactive learning techniques. The comments from some students, both from the survey and the focus groups, tend to indicate this is the case.

Challenges arising from flipped learning predominantly centre around learning the topic effectively (37 percent). Concerns here are particularly about self-confidence – have they collected the necessary and correct understanding from the notes? For some, their confidence level has increased when they understand that the classroom exercises will consolidate and build on the knowledge that they have gained from the notes.

Focus group findings

1. On note taking

The majority of pupils have not had a subject where they have been required to take notes outside class, before studying a topic, although many rewrite their class notes as part of revision before term and end of year exams.

Pupils liked the note making timetable and some used this to work ahead of the schedule particularly when they had upcoming sporting or other commitments.

There was some consensus, between focus group members, that the requirement for handing in notes by the due date meant that notes were likely to be finished and of a better quality than had they not been handed in. However, pupils often found the note taking experience (especially reading the textbook and making notes) to be dull. This caused some to delay making the notes and then rush to complete them so they could be handed in. Whilst they improved their note taking expertise over the year, some found it difficult to know what to include or how to condense the content, with some feeling they were merely copying the textbook and leaving out a few sentences.

A small number of pupils stated that despite having made notes they still lacked even a basic comprehension of some topics to know where to start on even the most simple of questions in class. Some pupils suggested making notes after the topic had been completed in class time. Therefore the only pre-requisite for studying a topic in class would be to have read the textbook or watch a video. However, some noted that motivation to complete the notes after the topic would still need to come from the teacher. This suggestion also defeats the purpose of flipped learning. Namely, that the purpose of flipped learning is to scaffold and expand learning from the point of note taking, to working on topic problems. This results in Bloom's "mastery learning" being achieved (Bergmann and Sams, 2012). A suggestion from some pupils was to include some comprehension questions with the reading to check on understanding of what they had covered in their reading or the provision of a template for what to cover (for example, skeleton notes that include headings and major components of the topic and provide space for the pupils to fill in notes). There were some comments about the

textbook being quite verbose and required a lot of reading to make notes (in some cases, pupils will need to read 5 – 10 pages for a topic). Other comments about the textbook were that it contained too many examples. The issue is that the reading of the textbook is that it has been the mandated method for making notes for flipped learning classes. However, for the non-flipped half of Economics, that pupils take with another teacher, there is no requirement for pupils to use the textbook except to expand encouragement. The other teachers do not have any requirements for pupils to read the textbook and the focus groups reveal that pupils only use the textbook for the flipped component of the course.

Some commented on the notes schedule and the class (tutorial) schedule becoming too disconnected, where notes were required to be made weeks ahead of when the topic was being covered in class activities. There was a suggestion to issue the schedule for the whole year but add the due dates (or modify them) as the year progressed. Others mentioned that having some autonomy about when to make notes was useful as this allowed reading and note taking to be spread out according to other commitments and requirements from other subjects. This gave pupils greater flexibility in arranging their work, making flipped learning beneficial in a holistic sense, as well as from an academic and learning perspective.

In other subjects where pupils made notes in class, some felt that they didn't have to concentrate as hard as they could listen to the teacher and write down what they were told to. However, by taking notes in class, pupils stated that they were not always

focussed on what the teacher was saying, either because of the concentration on note taking or through not being held accountable for listening. Although, pupils perceived a greater understanding when they did the notes outside class before building on their knowledge in classroom activities. As teacher talk diminishes in flipped learning, due to pupils being focussed on classroom activities, there was less opportunity to become disengaged from the subject content.

Most pupils wrote notes by hand or by typing in a conventional longhand form. A few used flashcards, mind maps or a Cornell grid, but felt that alternatives had not been emphasised, by the teacher, as valid methods of note taking. Whilst I had emphasised the need to make notes that were useful for their needs, such as helping with classroom activities and exam revision, pupils need to know that different approaches are acceptable.

Pupils were asked how they ensured that their notes covered the topic fully. A range of methods were used, including cross checking with a revision guide, highlighted areas in the textbook (particularly at the start of the chapter, which lists the key concepts), the scheme of work (provided with the reading and video list), the use of mind maps (also linked to the scheme of work) and the worksheets provided in class. Pupils suggested that a short quiz could be provided with the reading list to ensure complete coverage of the topics. However, some raised the objection that this would increase the amount of homework for the subject.

It was also noted, by a pupil during one focus group, that having been on a recent university open day, it was recommended that pupils should pre-read before attending lectures due to improved learning outcomes. As a consequence, he felt that this was good advice and a good chance to practice the skill.

2. On resources used

As the survey revealed, most pupils use the textbook and half as many use videos. These are the only two types of resources listed on the note taking schedule. Reading the textbook was mandated as part of the flipped learning process and therefore it is not a surprise that most adhere to that resource.

Whilst others use the recommended videos, other resources that are used are revision guides (often to check the main points in notes and as a simplified, more straight forward explanation) and search engines. A number of pupils made the comment that watching the videos and then reading the textbook worked better in order to increment knowledge and understanding.

The pupils have an Economics chat room on a social media platform, although this appears to be rarely used for sharing notes, understanding of economic principles or discussion of ideas. Therefore, pupils provide little support to their class peers (in general). There is a Microsoft Teams channel for each Economics class, however this is

not used by pupils and is generally used by teachers to disseminate procedural (rather than academic) information.

Other, support, although not widespread is asking older siblings or parents for help with economic concepts that the pupil had not understood.

3. On activities in class

The survey raised the issue that some pupils found a lack of variety in classroom activities (Q 9c, 16a). This was explored through the focus groups, although there was no general consensus. A number spoke about having more classroom discussions, which works particularly well in macro-economics due to its political components. Some raised a concern that this would be less effective in micro-economics due to its inherent technical and theoretical nature. Others mentioned that they "zoned out" of classroom discussions and that they "don't listen" when these take place. (From observation of class members during a discussion it is rare that anyone takes notes and that there are a number of class members who don't contribute to the discussion. Therefore, it is likely that, the more extrovert pupils will enjoy this activity. A suggestion was that discussions could be more focussed and structured (and that sometimes the topic of discussion went off into niche topics.

Pupils stated that collaborative working was something they found useful and would like more group activities. (As discussed in the preamble, many of these had been

reduced due to COVID restrictions). Economics classes, with other teachers, consisted of more discussions and whiteboard questions (e.g., planning essays, writing ideas to contribute to the class).

A number of pupils indicated that they would like to have a recap of the content and a chance to ask questions and clarification of content that had not been fully understood. Some made the comment that flipped learning was efficient in covering basic information and understanding, although some topics of greater complexity might be better with greater teacher support.

There was an acknowledgement that some of the practice questions, including the most basic worksheets, were useful, particularly to go back to in order to revise. There was also a sense that the workflow of the course was spread out across the year, which meant less cramming for exams. However, this required pupils to keep up to date with notes and learning.

Conclusions and implications

The question being addressed by this practitioner research project was "What is the pupil perception of flipped learning for A-level economics?"

The primary perception that comes out of the research is one of acceptance of a particular style of teaching. There has not been any major negative reaction to this approach, either from parents or pupils. This is particularly relevant in a school where parents pay fees and, because of the academic reputation of the school, will be vocal if they are unhappy about the school or its teachers. Additionally, school management have been willing to allow flipped learning in Economics classes but have offered limited comment. Therefore, at the most basic level, there has been tacit agreement to the approach.

Therefore, it can be concluded that there are no major objections to this style of learning and teaching within the school which has been subject of this research. Pupils have generally accepted that whilst they may not enjoy particular aspects, such as reading the textbook and making notes, which many claimed as boring) they are willing to accept this approach as being in their best interests. Whilst it is not possible (nor has it been researched at this particular school) to determine whether flipped learning improves academic results, observation of the A-level results over a number of years indicate that are not materially lower because of flipped learning. Note that some care needs to be taken with this statement, due to COVID arrangements, particularly due to the grade inflation following teacher assessed grades in 2020 and 2021 and the less

rigorous approach to examination marking which took place in 2022. There was certainly some discontent about what took place in the classroom and comments about lack of variety and interaction from pupils. A number of these were attributable to the COVID regulations and restrictions that were in place in 2020 and 2021.

However, on a broader and more positive level, pupils clearly valued classroom experiences under the flipped learning approach. They appreciated greater in-depth explanations for topic areas not fully understood. They also appreciated the opportunity to have discussions about key economic ideas, particularly those which are centred in the economic context of the time. Whilst these are important, because they allow pupils an opportunity to explain and argue particular concepts, there is a danger that these become an excuse for less rigour in learning, particularly as most pupils do not make notes during these exchanges. Then there is the concerning element that some disengage from what is being discussed and this leads back to the traditional classroom model where, for a certain proportion of pupils, they will passively listen, perhaps make notes, but they will neither engage in the lesson nor learn anything – resulting in the need to cram for exams later. The purpose of the flipped learning was to allow a more consistent, deeper level of learning and a favourable holistic approach to learning.

Many of the perceptions encountered by pupils in my Economics classes were similar to those discussed in the literature (for example, van Sickle, 2016, Doménech-Betoret, 2017). Particular aspects of this are having to work harder outside class to compile notes and in class having to remain actively involved. Intuitively, the fact that the

learning intensity has increased for pupils could be seen as a benefit and something that will enhance their learning and ultimately their appreciation of the subject.

The survey yielded a useful data set, particularly the numbers of pupils taking particular action (such as reading the textbook) and gave evidence for some items that I had gleaned from pupils prior to the survey, such as a lack of variety in classroom activities. However, the focus groups did not yield a great deal of output that was not already covered by the surveys. In many respects the answers were the same, without adding much depth. Upon reflection, it may have been better to use one to one interviews, as the focus groups were undertaken in class groups, in class time. This could have led to some pupils feeling that they could not express a different view from their peers, especially as some of the experiences of both classroom and teacher may have been discussed in the common room or the group chat. Therefore, the results yielded common and class information that was held in common amongst the pupils. In two of the classes, the group dynamic was overshadowed by dominant pupils who were vocal in their views and popular amongst their peers. One to one interviews with pupils, using a standard set of questions may have yielded a greater range of ideas. Of course, this would have limited the numbers being able to contribute beyond the survey. A standard set of questions would have potentially enhanced the information given, by targeted key elements, rather than the more fluid approach, centred around themes, such as note taking, resources and classroom activities.

Collaboration with colleagues has resulted in useful insights, where other teachers have acknowledged and been interested in the insights generated from flipped learning.

These include the strategy to increase the use of the textbook, by requiring it to be used to make notes and the interest in having more time in the classroom to work on problem solving, rather than delivering content. This is especially as those teachers that I collaborated with have the same issue about squeezing a long course into quite low amount of contact time and not spending as long as they would like in applying what has been learned by pupils to the theory being taught.

Implications for my professional teaching practice are that the pupil perceptions are useful in the sense that there is a lack of negativity regarding flipped learning and a general acceptance of the approach. This is enhanced by the growing awareness and realisation of year 13 students as to the benefits arising from flipped learning, particularly for exam preparation and in further education.

The main issues are around lack of variety in class. Therefore, one of the main things that my practice will focus on is ensuring a variety of tasks in a classroom that ensures most of the pupils are usefully engaged in a problem solving or thinking activity most of the time. Another aspect of the exercise indicates that there needs to be an improved method of checking the completeness of the foundation knowledge stage, which occurs in the "individual learning spaces". This could come about by setting quizzes or practice questions to perform in conjunction with the reading. I have some degree of reluctance about this due to: (i) pupils being able to answer the questions with minimal learning effort – there is a potential to game the system by just finding the answers to those questions, and (ii) the reading and note taking requirements can already be lengthy, therefore this adds to the homework load for pupils. Therefore, the recap and

knowledge gaps are best brought to class. This allows me, as the teacher, to know what pupils need additional support with and use necessary strategies to scaffold learning. Further research in flipped learning is to be encouraged in a broader range of settings: in secondary schools, in mixed ability classes, different subjects, and in a move away from focus primarily on academic outcome. Additionally, the way flipped learning is delivered should also be considered – what means of content delivery, but also the range and rigour of building subject understanding in the classroom.

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Appendices

Appendix A – Survey questions and numeric response summary

Questions	Responses (summary)
Q1 What strategies do you use for making notes in economics (for example, watch the video and make notes as you watch)?	
Q2 What materials and resources do you use for making notes (include all sources, including social media, other websites, books, previous students, tutors, etc.)?	Textbook (53) Videos (27) Tutor2u (A-level) Economics resources website (9) EconPlusDal (specific videos recommended) (8)
Q2(a) What resources are the most useful for you?	Textbook (40) Videos/YouTube (18) Revision guide (CGP) (6) Physics / Maths Tutor (4)
Q2(b) When making notes, do you (click on one option only) consider that they will be useful for Will your notes be useful for: i. revision of the topic ii. general understanding of the topic iii. notes only produced because they have to be handed in	i. revision of the topic (22) ii. general understanding of the topic (35) iii. notes only produced because they have to be handed in (8)
Q3 How long did it take before you felt that you had mastered note taking in economics? 0 - 1 month >1 - 2 months >2 - 3 months >3 - 4 months >4 - 5 months >6 months Don't feel that I have mastered this skill yet	0 - 1 month (13) >1 - 2 months (22) >2 - 3 months (11) >3 - 4 months (7) >4 - 5 months (1) >6 months (1) Don't feel that I have mastered this skill yet (10)
Q4 Has making notes for economics (outside class) caused you anxiety or worry? Please explain.	No (35) Yes – concerns about what to include, gaps in notes (13) Yes – time pressure to complete the notes (12)
Q5 How did you learn to make notes? Explain.	Previous experience (17) Practice (12) Self taught / trial and error (4) School support / study support sessions (2) Peers / older friends (1) Not achieved yet (2)

Q6 Have you tried different approaches to note taking? What were they? What do you find the best approach to be?	Not tried different approaches (30) Bullet points (6) Flash cards (5) Typed (5) Mind maps (3) Writing whilst watching a video (2) Longer notes then thin out (1) Reading the textbook out loud (1) Summarise into sub-topics (1) Dictation to a laptop (1)
Q7 Where do you make notes (book, single sheets of paper, tablet, computer, other)?	Paper (49) Laptop / computer / tablet (27) Flashcards (3) Quizlet (1) (Note: some use a device as well as paper)
Q8 What advice would you give next year's pupils about making notes for economics?	
Q9 How effective do you think the following resources are in improving your knowledge, understanding and abilities in Economics?	
Q9.1 Worksheets of basic questions (definitions, diagrams): Very effective Effective Neither effective or not Not particularly effective Not at all effective	i. Very effective (14) ii. Effective (29) iii. Neither effective or not (10) iv. Not particularly effective (12) v. Not at all effective (0)
Q9.2 Worksheets or calculations: Very effective Effective Neither effective or not Not particularly effective Not at all effective	i. Very effective (9) ii. Effective (30) iii. Neither effective or not (17) iv. Not particularly effective (8) v. Not at all effective (1)
Q9.3 Read an article and write an essay Very effective Effective Neither effective or not Not particularly effective Not at all effective	i. Very effective (7) ii. Effective (30) iii. Neither effective or not (15) iv. Not particularly effective (10) v. Not at all effective (2)

Q9.4 Data response questions (such as those from Anderton) Very effective Effective Neither effective or not Not particularly effective Not at all effective	i. Very effective (7) ii. Effective (22) iii. Neither effective or not (23) iv. Not particularly effective (10) v. Not at all effective (3)
Q9.5 Past exam questions Very effective Effective Neither effective or not Not particularly effective Not at all effective	i. Very effective (42) ii. Effective (23) iii. Neither effective or not (0) iv. Not particularly effective (0) v. Not at all effective (0)
Q9.6 Read an article, make notes and contribute to a classroom discussion Very effective Effective Neither effective or not Not particularly effective Not at all effective	i. Very effective (12) ii. Effective (21) iii. Neither effective or not (18) iv. Not particularly effective (8) v. Not at all effective (6)
Q9(a) Please give more detail, especially for items that you think are not effective:	
Q9(b) What activities have you particularly enjoyed in economics classes?	
Q9(c) What activities have you enjoyed least?	Worksheets (24) Read an article and write an essay (14) Long essays (10) Data response questions (5) Discussions (3) Calculation questions (2) Other (7)
Q10 If you could change two things in my economics classes, what would they be (please be constructive) and why?	Less worksheets (23) Greater focus on exam questions (21) More classroom discussions (19)
Q11 What do you think the greatest challenge has been for you to adapt to flipped learning?	Learning the topic effectively (24) Keeping up with the notes (17) Quality of the notes (7) Nothing (3) Other (8)

Q12 What do you consider the benefits of flipped learning?	Greater productivity in lessons (12) Independence (10) Notes (for exam revision) (12) Work on questions / problems in class (12) Preparation for lessons (8) Individual help being available in class (6) Efficient way of learning (5) Enjoyable lessons (3) Other (5) Nothing (5)
Q13 Any other comments about flipped learning that you would like to add?	
Q14 How would you describe your interest in economics? Interest level: Very interested - will continue beyond A-level Have a general interest in the subject Not particularly interested - just need the A-level Not interested - would prefer not to do the subject	i. Very interested - will continue beyond A-level (42) ii. Have a general interest in the subject (20) iii. Not particularly interested - just need the A-level (2) iv. Not interested - would prefer not to do the subject (1)
Q15 How would you describe your motivation in economics? Motivation level I need to get an A or A* in the subject Parents or carers pushing me to do well in the subject Have a general interest in the subject and want to use this opportunity to learn something new Not particularly motivated - just need the A-level to get into my preferred course Very low - the subject is not for me	i. I need to get an A or A* in the subject (45) ii. Parents or carers pushing me to do well in the subject (5) iii. Have a general interest in the subject and want to use this opportunity to learn something new (13) iv. Not particularly motivated - just need the A-level to get into my preferred course (2) v. Very low - the subject is not for me (0)
Q16 Please explain further why you selected the option above. Has the use of flipped learning added to your motivation and interest in economics? Use of flipped learning on your motivation and interest Added interest and motivation Neither added nor taken away Reduced interest and motivation	i. Added interest and motivation (7) ii. Neither added nor taken away (41) iii. Reduced interest and motivation (17)
Q16(a) Please explain further why you have selected the option above	

Appendix B – Note making schedule – example from year 13 macroeconomics

Curriculum	Textbook	Video or other resources	Complete by:
4.1.1 Globalisation • Characteristics of globalisation • Factors contributing to globalisation in the last 50 years • Impacts of globalisation and global companies on • individual countries, governments, producers and • consumers, workers and the environment	Read page 370 – 375 of Anderton Ensure that your notes cover the key ideas in these pages. Make notes for anything missed. Leave out the questions.	"Globalisation" EconplusDal https://www.youtube.com/watch?v=TLmXIFIYZ64 "Globalisation" Tutor2u https://www.youtube.com/watch?v=Oaj_hN9z9Gs	P2 Friday 7 September
4.1.2 Specialisation and Trade • Absolute and comparative advantage (numerical and diagrammatic): assumptions and limitations relating to the theory of comparative advantage • Advantages and disadvantages of specialisation and trade in an international context	Anderton p 378 – 381 (stop at "The terms of trade"). Leave out the questions	Tutor2u: "Comparative advantage and gains from trade" https://www.youtube.com/watch?v=BXgN9Ig8L-Q Tutor2u: "What is specialisation?" https://www.youtube.com/watch?v=v3Ec98E6CtM EconplusDal: "Specialisation" https://www.youtube.com/watch?v=v4PBbx4qRa0 PAJHolden: "Absolute and comparative advantage" https://www.youtube.com/watch?v=Pd_qs8ueIWw ACDC Leadership: "Comparative and absolute advantage practice" https://www.youtube.com/watch?v=HneRNVtahYw	P2 Friday 14 September
4.1.4 Terms of trade • Calculation of terms of trade • Factors influencing a country's terms of trade • Impact of changes in a country's terms of trade	Anderton p 387 – 389 Leave out the questions	PAJHolden: "Terms of trade" https://www.youtube.com/watch?v=wmqnCjjidEM EconplusDal: "Terms of trade" https://www.youtube.com/watch?v=n2EWnTBiyvE Make sure that you watch one of the following videos: Tutor2u: "Analysis on: The Terms of Trade Analysis on: The Terms of Trade" https://www.youtube.com/watch?v=M7Wm4v7krHw EconplusDal: "Terms of trade analysis" https://www.youtube.com/watch?v=FVbbRnlm4Xo	P2 Tuesday 18 September