

A phenomenographic outcome space for ways of experiencing lecturing

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After decades of increasing evidence in favour of active learning, lecturing remains the dominant face-to-face teaching mode. Just as a rigorous research approach is required to understand how to improve student learning outcomes, we also need research about how to reform teaching practice. Some initial steps in this direction have shown that successful pedagogical reforms are long-term, contextualised, and address teachers' beliefs about teaching. It is not enough to put in place overarching policy directives about active learning, nor to simply share best practice, because these strategies do not engage with the particular teaching contexts and beliefs of individual academics.

Professional development programs to shift academics away from the traditional lecture must incorporate academics' conceptions of lecturing. Although there has been some research into conceptions of university teaching in general, there is a dearth of literature focusing on conceptions of lecturing in particular.

This paper addresses that gap, by using a phenomenographic approach to interview 30 academics about their lecturing experiences. From analysing the transcripts, a hierarchy of five ways of experiencing lecturing was identified:

- (1) Lecturing as soliloquy
- (2) Lecturing as connecting meaning
- (3) Lecturing as cultivating individuals
- (4) Lecturing as transformatively co-creating
- (5) Lecturing as enacting research

Three themes of expanding awareness framed this hierarchy: interaction, student diversity, and lecture purpose. By extrapolating these themes downwards, a zeroth category was conjectured: *Lecturing as reading*.

Implications for educators are discussed, along with potentially fruitful avenues of future research.

Keywords: lecturing, phenomenography, professional development, conceptions of teaching, pedagogical reform

Introduction

Traditional didactic instruction has remained the norm since the advent of the university a millennium ago (Freeman et al., 2014). Although its dominance, along with much else in the university sector, has been upended by the COVID-induced massive shift to online education (Guo, Hong, & Coates, 2020), the final outcomes of which remain unclear (Talanquer, Bucat, Tasker, & Mahaffy, 2020), in face-to-face instruction it has remained ascendant. A recent large-scale observational study across 25 institutions in North America found that by far the most common instructor behaviour in STEM classrooms was lecturing, accounting for about three-quarters of class time on average (Stains et al., 2018). In that study, instructional profiles were categorised into three groups, from “didactic” to “student-centred”. Overall, didactic profiles were observed in a majority of classrooms, and were three times more common than student-centred classrooms. With large classes of more than 100 students, this ratio rose to more than five to one.

Meta-analyses in STEM education have shown that student-centred strategies consistently lead to demonstrably better student outcomes, not only in conceptual understanding but also in other ways such as attendance and motivation (Freeman et al., 2014; Prince, 2004). Despite the research evidence in their favour, in what has been called “one of the mysteries of higher education” (Samuelowicz and Bain (1992), p.110), these strategies are paradoxically the exception rather than the rule in our research-focused universities.

What can enable a shift to more research-based strategies? Analysis of successful and unsuccessful attempted reforms of STEM teaching practice has identified several key success factors, one of which is incorporating and/or building on teachers' beliefs about teaching (Henderson, Beach, & Finkelstein, 2011).

Beliefs about teaching

In his seminal work, Kember (1997) reviewed the literature on university teachers' beliefs about teaching and concluded that their findings could all be synthesised into a one-dimensional continuum from a 'teacher-centred/content-oriented' conception at one end, to a 'student-centred/learning-oriented' conception at the other. He identified five distinct positions within this continuum:

- | | | |
|---|---|--------------------------------------|
| <i>Teacher-centred/
content-oriented</i> | { | 1) Imparting information |
| | | 2) Transmitting structured knowledge |
| | | 3) Teacher-student interaction |
| <i>Student-centred/
learning-oriented</i> | { | 4) Facilitating understanding |
| | | 5) Conceptual change |

All of the 13 studies Kember analysed took a qualitative approach and used semi-structured interviews which, in all but one case (Fox, 1983), were recorded and transcribed for analysis. What was striking about Kember's review was that it identified a "high level of correspondence" (p. 255) between the different studies. The fact that the almost 500 research participants from across the 13 studies were so diverse, representing many different countries, disciplines, and experience levels, makes this uniformity all the more impressive.

Why are teaching beliefs important?

Beliefs about teaching are important because they predict teaching practices and behaviours (Hativa & Goodyear, 2002). However, this can be mitigated by insufficient training (Norton, Richardson, Hartley, Newstead, & Mayes, 2005), self-confidence (Sadler, 2013), or other contextual constraints (Norton et al., 2005).

Moreover, there is a chain of association between teacher's beliefs about teaching, and student learning approaches and outcomes. Kember and Gow (1994) conducted a longitudinal study demonstrating that students studying with teachers holding a predominantly 'knowledge-transmission' view about teaching shifted towards more shallow learning approaches, and conversely that students in a mainly 'learning-facilitation' environment developed significantly deeper approaches to learning. Deep learning approaches are associated with better learning outcomes (Trigwell & Prosser, 1991).

Contexts of study

Beliefs about teaching have been studied in many different contexts, including adult education (Pratt, 1998), police training (Shipton, 2020), education doctoral students (Mimirinis & Ahlberg, 2020), and many more. However, excepting one study focused on small tutorials (Ashwin, 2006), class size has not been considered. Nonetheless, university teachers think of small classes and large classes in different ways, often taking a student-centred approach with small classes, but a teacher-centred approach in large classes (Daniel, Mazzolini, & Mann, 2017). Academics' experiences of large classes, or lectures, have not been studied in detail, and yet arguably this is the most important as it is the strongest bastion against reform (Fulford & Mahon, 2020; Offstein & Chory, 2019). This, then, is the focus of this study, guided by the following research

question:

What are the different ways of experiencing lecturing?

Materials and methods

Phenomenography is a qualitative research methodology that investigates the different ways in which people experience or conceptualise a particular phenomenon (Marton, 1981). The aim of phenomenography is not to understand the phenomenon itself, but the different ways it is experienced by the research participants (Svensson, 1997). Marton (1981) uses the terminology of first-order versus second-order to articulate this distinction:

From the first-order perspective we aim at describing various aspects of the world and from the second-order perspective ... we aim at describing people's experience of various aspects of the world (p. 177).

From a first-order perspective we investigate some phenomenon in the world, from a second-order perspective (e.g. phenomenography) we investigate people's conception of that phenomenon. Marton (p. 177-178) offers an example, quoted in Table 1, of first- and second-order approaches to the same phenomenon. He points out that the truth, or falsehood, of each answer is independent of the truth status of the other. Likewise, the research methods used to evaluate the truth of these statements, or to investigate these different types of questions, are different. Phenomenography is a research method for investigating second-order questions, as it aims to investigate different ways of experiencing a phenomenon (Åkerlind, 2005). This focus on the lived experience of some phenomenon highlights how phenomenography is based on a non-dualist ontology (Åkerlind, 2005).

Phenomenography is based on variation theory, which posits that out of the multitude of different features of any phenomenon, there is a small key subset of features that are attended to, that are uppermost in people's awareness (Bussey, Orgill, & Crippen, 2013). However, different people will attend to different combinations of these features, and thus will be aware of the phenomenon in different ways. These different ways of experiencing will be logically related, in that the sets of key features they reflect an awareness of may intersect or be subsets of each other. Thus, the outcome of a phenomenographic investigation, in the literature known as the outcome space, is a set of categories of description. These categories of description are the logically-related qualitatively distinct ways of experiencing the phenomenon (Åkerlind, 2005). Some researchers have used a framework of "themes of expanding awareness" to characterise both the variation between categories and their structural inter-relationships. Themes of expanding awareness are dimensions of variation that run through all the categories of description, whereby each higher, more comprehensive, level of awareness corresponds to some new additional dimension of variation in the theme. This critical variation delineates the different categories of description (Åkerlind, 2003).

Arguably the best tool we have for understanding other people's experiences is analysing the different ways they talk about the phenomenon. Although the relationship between discourse and experience is complex (Säljö, 1997), phenomenography is nevertheless most typically conducted using semi-structured interviews. It is the relationships of meaning between the resulting pool of transcripts that is the focus of the research – both the key similarities, and key differences, in how the phenomenon is experienced (Åkerlind, 2005).

In this study, thirty academics from a range of disciplines (approximately half STEM, half non-STEM) from Australian universities were interviewed, using a semi-structured interview protocol, about their experiences of lecturing. The draft interview protocol was first trialled in several pilot interviews. These pilot interviews were only used to revise the interview protocol (the final version is in the Appendix), and were excluded from subsequent analysis.

The diversity of the sample was purposely maximised by recruiting participants from not only different disciplines, but also from different university contexts (urban versus rural; flagship research-intensive versus more technological or teaching-focused universities) and of different experience levels and genders, a dimension which has been historically overlooked (Hazel, Conrad, & Martin, 1997). By such purposeful sampling the diversity of the sample was maximised, with the aim of capturing a rich assortment of experiences. As a consequence, however, the results cannot be presumed to be representative of the population of academics at large, nor can any findings, statistical or otherwise, be generalised to other contexts. However, they are transferable, in that they may inform or help make sense of lecturing in other contexts (Smith, 2018).

Interview transcripts were read, analysed, and categorised, with the goal of identifying a set of qualitatively distinct, logically related, ways of experiencing lecturing. This was an ongoing iterative process of moving between the transcripts and successive drafts of the categories of description, involving “continual sorting and resorting of data, plus ongoing comparisons between the data and the developing categories of description, as well as between the categories themselves” (Åkerlind (2005), p. 324). Each successive re-drafting of the categories was a refinement, to iron out inconsistencies between the transcripts and the categories. The endpoint was a set of

categories of description that, in the author's interpretation¹, captures the critical variation between different ways of experiencing lecturing across the collective experiences represented in the whole pool of transcripts. In research based on an interpretivist epistemology, questions of trustworthiness are paramount (Sandbergh, 1997). The trustworthiness of this analysis has been previously argued (Daniel, Mann, & Mazzolini, 2017).

Results

Five different ways of experiencing lecturing were identified from the transcripts:

- (1) Lecturing as soliloquy
- (2) Lecturing as connecting meaning
- (3) Lecturing as cultivating individuals
- (4) Lecturing as transformatively co-creating
- (5) Lecturing as enacting research

These categories formed an inclusive hierarchy, where higher levels in the hierarchy reflect an increasingly comprehensive awareness of lecturing. There is no value judgement in this hierarchy - all awareness is partial and contextualised. The categories are described in the following sub-sections.

¹ Understanding the worldview of the researcher can help readers make sense of interpretivist analysis. In Section 1.3 of the thesis from which this work is drawn (Daniel, 2016), I describe my personal background and motivation for undertaking this research.

Category 1: Lecturing as soliloquy

Lecturing is a one-way interaction between the lecturer and the students, where the lecturer both performs and transfers content.

Key features

The key characteristic of this category is that interaction is only between the lecturer and the students: there is no interaction between students. The role of the lecturer is a combination of transferring content and performing.

In this category, the lecture is seen as an efficient device for the expert lecturer to transfer her knowledge to students. Beyond simply transferring information, or ‘covering the content’, this may also take the form of the lecturer giving an overview or highlighting key points of the topic. In addition, the lecturer’s background experience may be used to give context to the content through real-life examples and anecdotes.

The lecture is also seen as an opportunity to perform. This serves two ends:

- to motivate or engage the students, or
- to satisfy the ego of the lecturer.

Despite the term ‘soliloquy’ strictly speaking meaning a character in a play verbalising their thoughts, this term was chosen to capture the essence of this category for two reasons. Firstly, it is a theatrical device and therefore has a performance element, and secondly it is about one person putting forth their ideas while everyone in the audience listens.

Representative quotes from the interview transcripts

Alan's² transcript reflected these dual aspects of performing and transferring content.

He describes how a good lecture builds up his ego by the effective delivery of information into students' heads:

if you give a really good lecture, that's way better than a box of anti depressive tablets. I mean you realise you've contributed, you've done something ... smashed some information into these dummies' heads that they're going to remember for the next twelve weeks and reproduce in the exam. So [pause] and hopefully what's happened in the delivery of that, you know you've built your own ego and your esteem up in doing that [Alan, p. 27]

Category 2: Lecturing as connecting meaning

Lecturing is a process where the lecturer uses interaction to help students make connections between the content and their own experiences, interests, and understanding.

Key features

The key characteristic of this category is that interaction – both between the lecturer and students, and amongst the students themselves – is used to help make the content somehow more meaningful for the students. In addition to helping make connections between the content and the students, the lecturer's role also includes performing and transferring content.

2. All names are pseudonyms, chosen by the participants themselves. Page numbers for interviewee quotes refer to page numbers in the transcripts. Ellipses indicate where text has been omitted.

The lecturer helps students make connections between the content and their own experience through a variety of different strategies. These include asking students to generate their own examples or contexts for which the content is relevant, discussion or problem-solving in small groups, and role play. That is, the backgrounds of the lecturer and the students are brought to bear on the interactions between them. However, the lecturer only acknowledges differences between groups of students, and does not interact with the students as distinct individuals.

Representative quotes

The key feature of this category is making connections between the students and the content:

I think what you have to do is connect the students to that information [Cadel, p. 17]

Category 3: Lecturing as cultivating individuals

Lecturing is a process tailored to the individual diversity of students, to develop their perspectives and skills, both personal and professional, motivated by a sense of giving back.

Key features

The distinguishing characteristic of this category is a focus on the students as individuals. Lecturers go to some effort to find out about the diversity of the students and adapt what they do in the lecture as a consequence.

They cultivate new perspectives in their students, both in students seeing their environment and the content in a new way, but also through students recognising that the different views and ideas of their fellow students are often equally valid. The

development of students' personal and professional skills, such as communication, leadership, and teamwork, is a common goal. Lecturers share an altruistic drive to 'give back' for the opportunities they have had.

Representative quotes

Lecturers shape what they do to cater to the diversity of their students. For example, Juliet recognises that her students have diverse interests and backgrounds, so therefore uses a variety of strategies to better engage them:

there's lots of different ways to get such diverse learners. Some of them are artistic, some of them are drama, some of them are really up-to-date with current affairs and politics, and so I'm [pause] you know I've got a diverse group, so I need to try and access the ones that aren't necessarily sciency and think like me [Juliet, p. 30]

Category 4: Lecturing as transformatively co-creating

Lecturing is a co-created experience, driven by and building on students and their interests, experiences, and expertise, for the reflective, moral, and ethical transformation of students.

Key features

There are two key features in this category: co-creation, and personal transformation.

Co-creation means that the experience is driven by the students and the issues and concepts that are meaningful to them. As opposed to the lecturer performing on the stage, the lecturer and students are equals in creating the shared experience. The lecturers and students bring their different experiences, interests, and expertise to bear on the interaction between them. This co-creation is predicated upon purposely building a safe and connected community in the classroom – that is, place-making.

The other key feature of this category is the personal transformation of the students into reflective, moral, and ethical citizens. This is achieved through both targeted activities and deliberate modelling by the lecturer of traits such as integrity, honesty, and professionalism. The best lectures are inspiring.

Representative quotes

One key feature is that the lecture experience is co-created with the students. For example, Frank describes how the lecture experience stems from student input:

So what I really want is their experience, their years of experience and how they would handle given situations, and also [pause] and so this is the wisdom part of the thing. They give back just as much as we get. So it's really co-creation [Frank, p. 14]

The other key feature of this category is the personal transformation of students. For instance, Kaiser takes his role as a lecturer very seriously, and holds himself accountable as a role model of personal and professional behaviour:

for example, honesty, integrity, truthfulness – that the students should also learn these things from me, that I must be honest with them in what I say to them, I must remain committed. There should not be false things coming out of me. So that is one thing which I also, which I attach a lot of importance to because to me, we do not need only good professionals, we need good men and women to build up the societies, and it just not comes through only technical knowledge, it comes through the moral values as well. So this is one thing, that the moral values and the moral values not as through preaching, but through my own example and personality. [Kaiser, p. 15]

Category 5: Lecturing as enacting research

Lecturing is a process in which relevant research is enacted and embedded, towards the goal of personal and social transformation.

Key features

The key characteristic of this category is that relevant research in such disciplines as sociology, education, and psychology, for example about how students learn and interact, is deeply embedded and enacted in lecturing practices. Lecturing is a vehicle both for the personal transformation of students and the transformation of society at large.

Representative quotes

Unlike the other categories, there was only one transcript in this category: Mia's. Research underpins Mia's lecturing practice. Her lecturing is informed by research from sociology, pedagogy, psychology, and sustainability. For example, she is very explicit in describing her assessment criteria in lectures because to not do so would mean assessing students on the 'hidden curriculum', a mechanism for social inclusion and exclusion that has been criticised in the sociological literature:

my tutor team in the first-year course will tell you that I'm spoon feeding, whereas I would argue that when you have criterion-referenced assessment, the criterion are what we're assessing them on. If we assess them on anything that's not in the criteria, that would be called hidden curriculum, and hidden curriculum is a cultural practice that's all about social class and inclusion and social reproduction of the higher education community and cohort. It's actually a very dubious social practice. And I think we never really look at this disciplines and go why do our disciplines all look the same decade after decade? But there are social reproduction practices that arrange that. I mean there's a lot of social critique of that [Mia, p. 21]

Understanding the phenomenographic outcome space using themes of expanding awareness

The above categories are logically related, with an inclusive hierarchy. The inclusive nature of the hierarchy can be considered in terms of an expanding awareness of three themes: diversity, interaction, and lecture purpose. The higher categories reflect a broader, more inclusive, awareness of these themes. The outcome space is depicted in Table 2, while the themes of expanding awareness are explored in detail below.

Diversity

Diversity was the first theme of expanding awareness identified in the analysis, because the way that it was described in the pool of transcripts had an implicit logical hierarchy. This implicit hierarchy served as a device for the initial analysis, as described in Section 6.7 of the doctoral thesis from which this work is drawn (Daniel, 2016). Each successive category includes an awareness of the lower levels. The one exception is “individual diversity as an obstacle”, marked in italics at the upper boundary of Category 2, which was only apparent in two transcripts and helped articulate that category boundary.

Note there is not an additional level of awareness of diversity for Category 5. Similarly, there is not an additional level of awareness of interaction for Category 5. As mentioned above, what distinguishes Category 5 is that relevant research is enacted, for the purpose of social transformation. Although ‘social transformation’ is the highest level of awareness of lecture purpose, not every aspect of every category can be understood through these themes of expanding awareness. In particular, ‘enacting research’ does not correspond to a specific level of awareness of the themes.

Nonetheless, these themes are a framework for characterising the inclusive nature of the category hierarchy and describing most of the critical variation.

Supporting quotes for some of the levels of awareness of diversity are given in Table 3.

Interaction

Interaction is another theme of expanding awareness identified in the analysis. There is one key division in how interaction is used: either only between the lecturers and students, or between students. In each successive category, interaction is used in more diverse and sophisticated ways. Again, the one exception to these levels representing different ways interaction is used is marked in italics: *Interaction thwarted by lecture context*. This is one of the characteristics of Category 2, in the way logistical constraints, such as the physical lay-out of the room, or the number of students, hamper effective interaction. Although it is not a use of interaction, it is nevertheless included here amongst the levels of awareness because to be aware of the limitations of something implies the imagining of possibilities beyond them.

Supporting quotes for this theme are given below in Table 4. In the interests of brevity, supporting quotes are only given for some levels. Full details are available in Daniel (2016).

Lecture purpose

The third and final theme of expanding awareness is lecture purpose (see some supporting quotes in Table 5). Note that in these levels only the critical variation has been identified. This is particularly relevant here because an almost ubiquitous lecture purpose described in many of the transcripts was student learning, which along with

other commonalities across the pool of transcripts is discussed in detail in Section 6.11.7 of Daniel (2016).

Discussion

The findings of this study fill a gap in the literature, by articulating for the first time different ways of experiencing lecturing. Before concluding, a conjectured lower category, *Lecturing as reading*, is put forward, and implications for educators are discussed.

Postulating a lower category by extrapolating the themes of expanding awareness downwards

The five categories of description identified above represent an inclusive hierarchy of ways of experiencing lecturing. They can be understood using a framework of three themes of expanding awareness: diversity, interaction, and lecture purpose. Transcripts in higher categories reflected a more comprehensive awareness of these themes, and conversely those in lower categories reflected a narrower awareness. While not being associated with any particular transcript, and therefore not included in the outcome space, it is possible to postulate a lower category of description by hypothesising about lower levels of awareness of these three themes.

Extrapolating downwards from the themes of expanding awareness

For diversity, the lowest level was “acknowledgement of group differences”. A postulated lower level could therefore be “diversity not acknowledged”.

All participants described using some form of interaction with students, and at the lowest level this was either “engaging students’ attention”, or “gauging or clarifying

their understanding”. A hypothetical lower level could hence be only using interaction for “engaging students’ attention”, or not using it at all.

The lowest level of lecture purpose was “transferring content”. In Category 1, this had elements not only of “covering the content”, but also of the lecturer highlighting key points of the topic area and using real-life examples and anecdotes to give context to the content. A proposed lower level of awareness of lecture purpose could exclude these latter aspects, and therefore be only “covering the content”.

Participant self-selection bias offsets purposeful sampling

Despite attempts to maximise the diversity of the participants, they all had one thing in common: they agreed to participate in an interview. This self-selection bias suggests that they are interested in education in general and lecturing in particular. Conversely, the self-selection bias may have precluded lecturers from taking part who were not interested in education and lecturing, or who did not feel they had anything to talk about. Arguably it is these lecturers that, had they been interviewed, may have had their transcripts placed in this lower category. Furthermore, in the transcripts some of the respondents described colleagues with some of the lecture practices associated with this postulated category.

In the following section some of these quotes will be used to describe this postulated **Category 0: *Lecturing as reading***. ‘Reading’ was chosen as the category descriptor because it resonates with the etymological root of ‘lecture’. The English word ‘lecture’ is derived from the Latin *lectus*, being the past participle of *legere* “to read” (Harper, 2014).

Postulated Category 0: Lecturing as reading

Lecturing is a process of covering the content using a monologue.

Key features

The distinguishing characteristic of this category is the one-way transmission of content from the lecturer's notes to the students. Differences between students are not acknowledged, instead they are effectively treated as blank slates ('tabula rasa') or empty vessels. Interaction between the lecturer and students is minimal, and is only used to 'wake up' the students and attract their attention.

Diversity not acknowledged. In this category, the students are assumed to be homogenous or otherwise effectively blank slates. For example, Eddie makes no assumption about the background knowledge of his first-year economics students:

I'd assume nothing when you walk into my class [Eddie, p. 9]

Minimal interaction. A 'meme' that occurred several times in the transcripts was 'death by PowerPoint', which was interpreted as reading PowerPoint slides without any interaction with students:

I try and steer away from just traditional "death by PowerPoint" [Sam, p. 4]

Covering the content. In this category, the purpose of a lecture is to cover the content. In an example that resonates with the title of this postulated category, Sam describes having heard of lecturers that simply read to their students:

So you know I've heard, you know, and I still can't believe this, but I've heard of lecturers that sit there and read books to students and it's just like [laugh] [Sam, p. 13]

As a final example, Frank describes his undergraduate classes as ‘just passing on knowledge’:

Undergraduate subject is about credit by – just passing on knowledge with little interactivity because they don’t really want to interact [Frank, p. 5]

In fact, this quote contains the essence of this category, which is about:

- covering the content (‘passing on knowledge’),
- ‘with little interactivity’, and
- with diversity not being acknowledged (as he implies none of the students want to interact).

Relationship to the literature

Many studies have investigated university teachers’ different beliefs about teaching, albeit not in the specific context of lecturing. Moreover, many of these studies have used phenomenography to characterise this variation. Although the context of this current study is novel, many features of the outcome space corroborate with other findings. Some examples are given in Table 6.

Implications for educators

This study was inspired by the finding that successful STEM education reforms must address teachers’ beliefs about teaching. The hope is that these results will be incorporated into professional development programs about lecturing practice, as has been done elsewhere with academic teaching more generally (e.g. Cassidy and Ahmad (2019); Ho, Watkins, and Kelly (2001)). For example, one strategy to do so could be to use the framework of themes of expanding awareness to challenge lecturers to consider

interaction, student diversity, or lecture purpose from a broader perspective. Another strategy could be to use the findings of this study as a reflective device, for the reader to examine their own beliefs and practices against the framework depicted here. This may challenge the reader to change or become aware of a wider range of possible approaches to lecturing, and spur them to critically evaluate the different contexts within which those possibilities are most effective.

Future research possibilities include evaluating the application of these findings in professional development programs, or investigating how they relate to the concept of pedagogical content knowledge, which has been developed more in the context of secondary education (Loughran, Mulhall, & Berry, 2008). Another possibility is using these findings to develop and then subsequently validate a survey instrument “Approaches to Lecturing”, akin to the “Approaches to Teaching Inventory” (Trigwell, Prosser, & Ginns, 2005).

Finally, the COVID-19 pandemic has accelerated, perhaps irrevocably, a global shift towards online education (Guo et al., 2020). This is an opportunity to reconsider “normal” practices and reimagine higher education pedagogy, in its many facets (Talanquer et al., 2020). Such a dramatic change will no doubt challenge and reshape teachers’ beliefs and values (Naylor & Nyanjom, 2020). Given that this study was conducted pre-COVID, it will be interesting to see how this framework of beliefs about lecturing relates to the teaching practices and beliefs that emerge post-COVID.

Conclusion

Despite its inadequacies, traditional lecturing remains the norm in most institutions. Successful STEM pedagogical reform must incorporate academics’ conceptions of teaching. In this study the focus has been on lecturing, rather than teaching in general.

The different ways of experiencing lecturing identified in this study offer a novel contribution to the literature. These different ways of experiencing lecturing must be considered in professional development programs for lecturers in order to offer the best hope of successful teaching reform.

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No potential conflict of interest was reported by the author.

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Appendix

Final interview protocol.

V11. Consent form. - Thank you for agreeing to participate.

Introduction - FAST: Explain what the study is about:

- Purpose: researching academics' experiences of lecturing
- Results to inform future professional support for academic staff, and add to discussions about higher ed.
- One interview of approximately 45-60 minutes. Free to withdraw at any stage.
- Audio recording – for accurate transcription later, and so that I'm not distracted by note-taking and that we can have a conversation
- Confidentiality – Analysis will only involve de-identified interview transcripts.
- Welcome to look at the products of my research
- No 'correct answers', I am interested only in your experiences.

Don't talk too much

Use 'that's interesting' rather than 'that's good'

Use 'tell me more about that', 'what do you mean by X?'

'could you give me an example?'

Guard against assuming any terms they say.

Past lecturing experience – Background - FAST

- How many years have you been lecturing for?
 - What do you lecture in?
 - Level? Undergraduate/postgraduate – first year/final year
 - Typically how many students?
 - How many lectures do you usually have each week?
- What kind of formal or informal training have you had that's relevant to lecturing?

You mentioned BLAH...

That's interesting.

Talk me through it.

Can you tell me more?

Why do you think that's important?

First experience: Let's talk about the last lecture you gave – tell me about it.

- What happened in that hour? What did you do? **What were you trying to do?**
- Why did you do that?
- How many students? Where was it?
- How did it go?
- NOTES:**
-
- In hindsight, what would you like to have done different?
- Why didn't you?

Thanks for that

No personal curiosity!

Second experience: We've talked about your last lecture experience. Is that typical of what you normally do?

- So what's typical? How is that different to what you described before?

Third experience: Can you tell me about the best lecture you've ever given, or attended.

Count to 10

- What took place?
- What made it the best? Why do you think that's important?
- How have you tried to incorporate that in your own lecturing?
- Only if they mention difficulties: [[What did you find difficult about implementing that?]]

Why do you think that's important?

Conclusion:

- Based on what we've talked about, what does lecturing mean for you?
- How has your lecturing has changed over time?
- [If mentioned before] How has your training influenced your lecturing?
- Do you have anything you'd like to add about your experiences of lecturing, or lecturing in general?
- Is there anything you'd like to ask me?

Nothing new!

Why?

What happened?

How does that relate to what you said earlier?

Tables

Table 1. First- and second-order perspectives on the same phenomenon (Marton, 1981)

	First-order perspective	Second-order perspective
Question	<i>Why do some children succeed better than others in school?</i>	<i>What do people think about why some children succeed better than others in school?</i>
Possible answer	<i>The differences in success in school mainly reflect inherited differences in intelligence.</i>	<i>There are people who think that the differences in school mainly reflect inherited differences in intelligence.</i>

Table 2: The outcome space framed by the three themes of expanding awareness

Cat.	Description	Themes of Expanding Awareness			
		Diversity	Interaction	Lecture purpose	
1	Lecturing as soliloquy	Acknowledgement of group differences	<i>Interaction between lecturer and students</i>	Engaging students' attention	Transferring content
		Tailoring to group differences		Gauging or clarifying understanding	Performing for ego / performing to motivate
2	Lecturing as connecting meaning	<i>Individual diversity as an obstacle</i>	<i>Interaction between lecturer and students</i>	Connecting students with content	Making content meaningful
				<i>Interaction thwarted by lecture context</i>	
3	Lecturing as cultivating individuals	Tailoring to individual diversity	<i>Interaction between students</i>	Cultivating new perspectives	Developing individuals
				Student skill development	Giving back
4	Lecturing as transformatively co-creating	Individual diversity as a resource	<i>Interaction between students</i>	Learning from other students' expertise	Personal transformation
				Co-creation	
5	Lecturing as enacting research				Social transformation

Table 3: Supporting quotes for diversity as a theme of expanding awareness

Cat.	Level of awareness of diversity	Supporting quote
1	Tailoring to group differences	<i>“there is this bit of a switch between first and second year, that there’s less of the making everything non-threatening in a way, and more critical thinking” Bernice, p. 11</i>
2	<i>Individual diversity as an obstacle</i>	<i>“what we do is we shove large groups of students all in together with totally different interests, and that is very difficult” Louis, p. 11</i>
3	Tailoring to individual diversity	<i>“I’m always trying to play it off what their experiences are for this subject” Annie, p. 6</i>
4	Individual diversity as a resource	<i>“leveraging the capabilities in the room, which are not just your own, the students these days are [pause] particularly the [his current university] ones I’ve found are actually great resources for teaching other students” Ben, p. 22</i>

Table 4: Supporting quotes for interaction as a theme of expanding awareness

Cat.	Level of awareness of interaction	Supporting quote
1	Gauging or clarifying understanding	<i>“bit of a you know like any clarification, you know, question asking and that kind of stuff” Priscilla, p. 8</i>
2	<i>Interaction thwarted by lecture context</i>	<i>“Now there’s only so much interaction you can have in a lecture theatre that size. You can have a bit of question and answer, but it’s relatively stilted, you know, it’s not a conversation” Yasmin, p. 12</i>
3	Cultivating new perspectives	<i>“you just put those little things in and it starts to get them to think, because what I want them to realise is that [pause] I want them to see that there’s a myriad of views here. That the views are not homogenous, and so I try to do that” Walt, p. 15</i>
4	Learning from other students’ expertise	<i>“and I let them talk, trying to get them to answer each other’s questions, rather than me answering them for them” Therese, p. 11</i>

Table 5: Supporting quotes for lecture purpose as a theme of expanding awareness

Cat.	Level of awareness of lecture purpose	Supporting quote
1	Transferring content	<i>“if we’re talking about a lecture I think personally [pause] with a lecture where we’re just delivering straight material” Alan, p. 3</i>
2	Making content meaningful	<i>“It is things like starting with the student experience, and what does the student know, how are things linked to that, how can you then move that into another dimension, how then do you put a theoretical construct around that? So it’s practice into theory, not theory into practice” Therese, p. 17</i>
3	Developing individuals	<i>“I want you to learn rules of thumb [pause] you know, does it look right? Get a ???, acquire a gut feeling, you know. I want you to be able to look at something and say is it right? Does it, will it work, okay? Very important. You’ve got to be people who make judgements about things, not people who accept things on face value” William, p. 22</i>
4	Personal transformation	<i>“lecturing is basically [pause] it is on one hand developing the personality of a young man or woman, and the perspectives of knowledge really, because I have always thought it was my duty as a teacher to have a positive influence on my students, not only in terms of teaching. But say for example, honesty, integrity, truthfulness – that the students should also learn these things from me, that I must be honest with them in what I say to them, I must remain committed. There should not be false things coming out of me” Kaiser, p. 15</i>
5	Social transformation	<i>“I make no apology that I care about arts, because it’s a way of creating a better society, it’s a way of broadening knowledge and value for inclusiveness, and I’m proud of that and I advocate for that, and I think that translates very clearly into lecturing” Mia, p. 32</i>

Table 6: Findings corroborated in the literature

Category	Similarities in the literature
0: Lecturing as reading [postulated]	Teaching as “scattering seeds to the wind rather than transferring them to specific containers... whether or not these are relevant or applicable in particular contexts or whether they make sense to anybody but himself is not his concern. His responsibility is solely...the purity of the seed” (Fox (1983), p. 153)
1: Lecturing as soliloquy	Teacher points out the important contents (Postareff & Lindblom-Ylänne, 2008) Presentation as a stage performance (Kember, 1997)
2: Lecturing as connecting meaning	“Students engaging in meaningful learning activities to promote a deeper understanding of content” (Shipton (2020), p. 240)
3: Lecturing as cultivating individuals	The individual experiences, abilities, and motives of students are valued (Fox, 1983) Tutor’s role is to help students think about content in a different way to elevate their understanding (Ashwin, 2006)
4: Lecturing as transformatively co-creating	“[teachers’] experiences become interwoven with the students’ experiences around a shared concern or a shared question” (Mimirinis and Ahlberg (2020), p. 14) Teaching as nurturing and facilitating personal agency (Pratt, 1998)
5. Lecturing as enacting research	Teaching is guided by an explicitly stated set of principles linked to a vision of a better social order, derived from an overarching system of beliefs (Pratt, 1998)