Educators' Reaction to an Introductory AI Training Session at a Large Vocational Institution in The Small Island State of Malta

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Abstract

With the growing integration of Artificial Intelligence (AI) in education a pressing need to react to the realities of students using such tools in various context, training was seen as a pressing need. An initiative was carried out to train lecturers in each of the 8 institutes in Malta's largest vocational college on the basics of Large Language Model use and an indication on the effectiveness or lack thereof of the Turnitin AI detection tool when faced with AI generated text. The intention of the author has been to explain and highlight the changes in AI to train educators in their use but this process brought about an interesting discussion which highlighted some facts about the thoughts and attitudes of educators in the vocational context and how their understanding of AI was different to the options available to students using it. The transcripts of the sessions were coded with contributions from the vocational lecturers indicating valuable insights into the current perception of educators on AI and how best to take such perceptions in the right direction and assist them to embrace AI tools to improve their pedagogical practice.

Keywords: Generative AI, ChatGPT, Chatbots, Education, Teacher reactions

1 Introduction

The introduction of Large Language Models in the classroom was initially prompted by the launch of ChatGPT (Introducing ChatGPT 2022) in November 2022. When the large language model was launched it heralded the possibility of a fundamental change to society and specifically to education. Large Language Models can very conveniently offer the answer to many technical problems based on the user crafting a specific prompt, with clear implications on student teaching, learning and assessment.

Although there were large language models before ChatGPT none of them had reached the vocational classroom. Students were not using such tools yet

since they were not generally available. The availability of ChatGPT prompted a sudden change in perspective with students suddenly becoming aware of the fact that Large Language Models existed and were an extremely convenient tool to generate technically correct answers to tasks and assignments that hitherto took a significant amount of time and research to get done properly.

The proportion of students understanding the potential of such models to generate answers to assignment questions led to significant concerns expressed by the academic body at MCAST **d** A significant proportion of lecturers requested the use of an AI detection tool in order to detect AI use. The reason for the series of courses that were delivered was in fact to explain to lecturers that AI detectors had a non-zero false positive rate and that it was difficult for the author to explain the reason for a high AI percentage. AI detectors are necessarily a 'closed box' and therefore the explanation of such percentages could not be adequately explained by the author's own experiences.

As the IT and Development Operations administrator at MCAST the author has been exposed to the impact of several very large disruptions in the educational context. The initial COVID crisis sensitized the author to the massive changes that needed to be done very quickly in order for education to continue in the new remote learning age. This made the author very sensitive to the impact of AI and also enhanced the perception of the importance of training educational staff in the use of AI as a whole.

This research is an autoethnographic insight into the way the researcher's perceptions evolved in the process of delivering AI for education training to the 8 different institutes within MCAST and how the actual process of presenting AI and discussing the issues raised by the activation or deactivation of AI detectors for assessments changed the initial perceptions of the researcher and influenced subsequent training sessions compared to a recently released research paper that suggests AI activities linked to the Effective Teaching (Coe et al. 2020) toolkit a recent and impactful paper that has impacted the development of pedagogy in the last decade.

2 Research Objectives

The research aims to determine the approaches and attitudes of educators to AI and how those attitudes contributed to a change in approach by an experienced AI research who is also an educator and how it assisted in the process of clarifying the training required by educators to adapt to the AI enabled present.

- To assess the initial impact of AI on educators and students in a large vocational institution through the experiences of training these educators.
- To understand the pedagogical impact of AI and how it is affecting lecturers in practice.
- To evaluate the appropriate approaches to dealing with the prevalence of AI in tertiary education.

- To identify potential ways that solutions and training can be provided to tertiary lecturers dealing with the possibility of students plagiarising using AI.

Through the above objectives a preliminary model explaining the attitudes and approaches of an experienced operator in the context of e-learning and how they change when faced with many inputs from different educators can be proposed which could then be analysed and researched further based on more sources of data. This paper adopts a Grounded Theory approach to research which is inherently scalable and invites further research in an area that is sure to attract various different players. Grounded Theory's iterative constant comparative process and inherent scalability with its assumption that 'all is data' can ironically be compared to the training process of an AI model. Given the success that AI models have had in developing realistic stochastic models of the world one can hypothesize that Grounded Theory is a form of subjective 'AI' applied to the world.

3 Literature Review

The researcher's innate attitude is coming from a varied background which includes a first degree in Psychology followed by another undergraduate qualification in Software Engineering and a Master's in E-Learning. This background serves to provide the context in which the researcher in this case comes from a constructivist philosophical viewpoint (Charmaz 2014) due the focus on empathy that comes out of his first degree. There is also a certain positivist bias due to the software engineering background of the researcher that tends to indicate that a balance needs to be sought in the approach that underpin the analysis.

In order to put the researcher's background in the right context a clear analysis of the literature in the context of AI in education is an important part of this paper as it serves to contextualize the preliminary biases and insights that drive the attitudes and approaches of the researcher. In order to adhere to Grounded Theory precepts the basis of this research is an insight into the concepts explained in the AI training sessions along with a constant comparison of these concepts to the concepts outlined in the secondary data.

The research follows Glaser's (Glaser 2015) perspective that 'all is data'. In this case and for the purposes of this Grounded Theory paper both secondary and primary data are in fact data to be coded and compared to determine the latent patterns that indicate that information is relevant and can be used to study this complex and dynamically changing phenomenon.

It is in fact due to the relative paucity of data with respect to educators and how they engage with AI that such a relatively limited method of data collection is used in this paper as this paper and autoethnographic analysis can serve as a starting point in order for the Grounded Theory methodology of constant comparison to be applied to more varied experiences in the context of vocational teaching and education especially with the rich and varied data source that is MCAST as a vocational institution.

In line with a constructivist GT approach (Charmaz 2014) this literature review aims to enrich data gathering and inductively provide insights into emerging themes on AI assisted vocational learning this entails as mentioned previously an iterative constant comparison of secondary data in the form of academic literature with the field of study which leads towards theoretical sensitivity about the field being studied followed by the qualitative generation of primary data through an experimental analysis and a comparative retrospective on the output of the primary data on the secondary sources.

Researchers performing studies evaluating AI in Education (AIED) tools have been investigating their ability to improve the quality of learning through customization and personalization features as they target individual learning styles as posited by Chen et al. (2020). The nature of these systems is congruent with the argument about the need to focus on the individual and the social constructivist approach as described by Khaled et al. (2014). A more recent paper by Ethan and Lilach Mollick (Mollick & Mollick 2024) has shown some fascinating examples of building interactive educational material in the context of AI.

The research approach outlined in this paper includes coding the modern research paper by Prof. Mollick with all the suggestions on the use of AI that come in through the conclusions outlined in that paper and comparing those codes to the codes that were generated from an analysis of the transcripts of 6 interactive online sessions that were carried out in February 2024 to all the Institutes at MCAST one of the largest vocational colleges in Malta.

The challenge of pedagogy has always been the identification of the appropriate teaching methodologies that are relevant to the context of the students that we are teaching. Taking the Great Teaching Toolkit approach in consideration (Coe et al. 2020) it is clear that to perform good pedagogy even in the age of AI there are certain principles that are important to keep in mind for teachers. The Great Teaching Toolkit outlines a number of important aspects required for good teaching explaining that there are four important principles that are required for students to have an enriching educational experience. These four principles are as follows:

- Understanding the content
- Creating a supportive environment
- Maximizing opportunity to learn
- Activating hard thinking

In this case given the relative difficulty in determining what the outcome of correct teaching using AI activities are (our goalposts so to speak) the data to consider can be categorized under the following main sets:

- Teacher perceptions of AI's effect on their students
- Student perceptions of AI's effect on their studies

- Theoretical sensitivity to cutting edge pedagogies that are aware of AI's effects

This paper considers the first set by coding transcriptions of the reactions of Teachers to a seminar regarding AI's effect on students and teaching and the third set by coding and examining papers that implement pedagogies based on AI. The second set can be catered for using a GT approach by qualitatively interviewing students but this has not been done so far in the context of this research. It is envisaged that the second set will be covered as part of the scope of STAR as a research project but at a later stage and the results can be considered as part of a subsequent publication that links the points made in this paper with points made in a paper that focuses exclusively on qualitative interviewing of the experiences of Students using AI in the context of their studies and specifically in their use of the AI model being developed in this study.

4 Methods

The methodology outlined in this paper can be termed Computer Enhanced Grounded Theory in that the methodology itself for the study leveraged a number of AI tools in order to be able to provide for correctly tagged and organized information in MaxQDA 2024 (Verbi 2021).

MCAST (2021) is one of the largest vocational institutions in Malta with a current active population of nearly 10000 registered full time students. The student body is organized by 'Institute' with each institute focusing on definite subject areas that are related to each other. There are 8 institutes and centres 6 of which are located in the main campus at Paola with the Institute of Creative Arts located in Mosta and the Gozo Institute located on Malta's sister island. Each of these Institutes has a complement of educators all of whom are grappling with the concept of AI and how to apply it to education. The requirement of the CPD sessions was related to a requirement by the MCAST QA department to create a viable AI policy in order to ensure that students using AI have a fair framework governing the use of such tools in the context of their assignment submissions.

In order to provide viable training regarding AI the researcher was asked to prepare a number of hour-long sessions explaining how AI works and the implications of the use of 'AI Detectors' like Turnitin on assessment. Several issues with respect to false positives had been flagged in the institution and given that the researcher is also involved in an operational context such issues were directly in the researcher's purview. It was deemed prudent at the time to ensure that all AI detectors were turned off until more information could be sought at that point in time.

The sessions were carried out in the week between the 19th and 25th February. All the sessions were recorded and transcribed using OpenAI Whisper (Radford et al. 2022) which yielded a good quality transcription given that all

the sessions were delivered in English. The code used did not discriminate between speakers however there were a number of sessions where a lot of discussion took place and this could be identified in the subsequent step of the analysis.

All the transcribed texts were imported into MAXQDA with the text being re-read and coded by the researcher using the MAXQDA AI assist function. The iterative process was based on highlighting text in a line-by-line fashion utilizing the 'AI Assist' function to generate candidate codes and always selecting a single viable code to highlight the specific passage that was deemed the most representative. It was noted that this intervening step made the AI assist function a very useful critical companion for the initial step of generating 'in-vivo' codes refining the researcher's thinking and abduction in choosing the correct code since the function often provided the correct classification of the text that would have happened on the second iteration when generating codes from in-vivo codes.

Given Glaser's (B. G. Glaser & Strauss 2009) principle that all is data the paper by Ethan and Lillach Mollick (Mollick & Mollick 2024) highlighting some preliminary strategies for using AI in education was also included as a document to be transcribed in the same MaxQDA model with the paper being included last to determine whether the series of lectures (which were conducted prior to the paper's publication) reflected the themes and ideas that were included in the paper. When all the codes were generated they were re-analysed by the researcher in a subsequent pass with the different codes being collected into categories as required. The collected codes were then analysed to generate a set of summary grids highlighting the passages that supported the development of the codes through the extensive use of the 'smart coding view' window in MaxQDA which allows for the user to only see the specific coded segments related to a specific code which in turn supports the argument being built in a stepwise fashion through the tool.

The creative coding tool was also used to generate a preliminary model even though it is clear that there are insufficient cases in this case to generate any lasting conclusions given that more data and more comparison is required in order to construct a preliminary model. There are however some interesting insights brought about by the application of the Grounded Theory constant comparison model to this information which can lead to the generation of a preliminary model of the effect of AI in the classroom at least on teaching and assessment.

5 Results

When comparing results a number of analysis tools are available in MaxQDA to create a functional model of the codes that were generated in the tool. An iterative process was adopted with the researcher iteratively 'pruning' the codes that were initially generated to create an initial conceptual model. Code hierarchies though initially adopted were discarded at this point as it was clear that there was no single parent and that coded segments were relevant to a number

of different issues that were highlighted by the lecturers in the focus groups.

The document analysis was split into two 'sets' to distinguish the secondary data in this case the Mollick paper against the analysis of the sessions carried out with MCAST lecturers. Several 2 cases models were generated to compare the different sessions to each other and ultimately to compare all these comparisons to the included paper. The idea here was to see the code overlap between the different sessions and whether the insights from the different cases (with each session being taken as a case) was indicative of a specific pattern that could indicate a preliminary model / analysis. The code frequency table is reproduced below highlighting the relative code frequencies once all overlapping codes were iteratively combined based on the conceptual meanings in the code segments. An analysis of the codes in MaxQDA's smart coding tool yielded the following list of codes and their relative frequencies:

Code	**Frequency**
Impact on teaching and assignments	61
Students using AI tools to plagiarise	26
Tackling the situation	26
Supervision of AI tool use	24
AI misinformation/hallucinations	22
Tricks for exposing GPT use	21
Process instead of product	19
Expert knowledge	18
Advancements in AI	17
Legal and ethical considerations in AI	14
Using AI in class	14
Combining tools	14
Skills that don't use AI	13
Learning through co-creation	13
Risks of AI use in critique	12
Teacher as the judge of what is acceptable	11
Detectors and false positives	11
Using tools in combination	11
Learning through critique	10
Practice in the use of AI tools	9
Evasion of detection	8
Learning through simulations	8
Freely available tools vs paid	8
Disagreement with indicator switch off	7
Non-deterministic nature of AI tools	7
Students better understanding of tech	7
Prompting for reflection	7
Learning through mentoring coaching and tutoring	7
Disbelief	6
Encouraging students to reflect on their use of AI tools	6

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Table 1 – *Continued from previous page*

Code	**Frequency**
Integration agent	6
Honesty and fairness for AI tools in education	5
Practical applications of AI	5
Risks of AI use in tutoring	4
Zero tolerance for AI	4
Intellectual property of notes uploaded to AI	4
Deterrent effect	4
Value judgment	4
User experience	4
AI tutoring	4
Risks of AI use in co-creation	3
Using AI in preparation	3
Utilization potential	3
Critiquing an AI scenario	3
Experiential learning	2
Customization by individual instructors	2
AI as a student	2

The codes were re-checked though the use of the MaxQDA smart coding tool which lists the codes on the left and generates a list of the summary codes on the right as per the following screenshot:

The smart coding tool has the advantage of showing all the codes on the left while only showing the highlighted segments on the right. This allowed the researcher to re-check the coded segments in each of the documents and to determine whether the highlighted data incidents corresponded correctly to the thematic codes that are listed on the left. Some codes were linked to multiple thematic areas because there was a significant overlap between different concepts coming from different areas. As can be noted from the screenshot the relevant codes are listed in a column in the smart coding tool.

Once the codes were re-checked it was time to generate a visual representation of the data to facilitate visualization of patterns in the data in order for such visualizations to be presented. In this case the MaxMAPS feature in MaxQDA was used to generate multiple 2-cases models in order to compare the codes that were elicited in the multiple cases.

MaxMaps generates a knowledge graph linking the case to the specific code while checking the overlaps between two cases. In this case a number of maxmaps were generated a selection of which are reproduced in the results below.

The following figures highlight a comparison of the sessions carried out based on the MaxQDA two-cases model feature that identifies the overlaps between coded segments in multiple cases. In this case the multiple cases are the different sessions carried out in the different institutes. One of the two cases models is included for brevity however for the purposes of the study all the combinations of two-cases models were generated with slight differences indicating the priorities

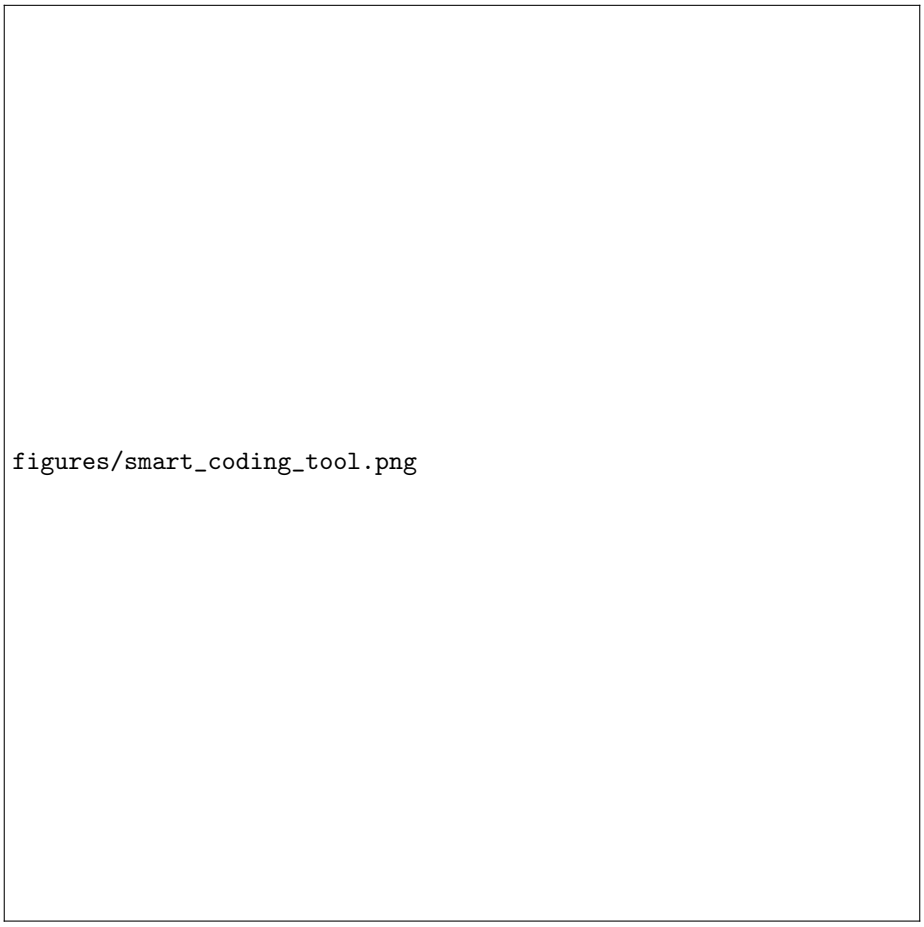

Figure 1: Screenshot of the smart coding tool

of the different content areas of the different institutes being highlighted when generating such two cases models.

As can be seen in the two cases model in cases where the institutes showed a largely technical background the common codes that were highlighted were related to understanding how to supervise AI use discussing false positives and the use of AI detection and methods of guaranteeing the fact that students have access to expert knowledge. The codes in the middle of the two cases model are elements that are shared between the two cases however the codes on the edges of the diagram are codes that are only prevalent in one of the cases. It is interesting that in the case of ICT the idea of zero tolerance for AI and the idea of legal and ethical considerations as well as a focus on skills that don't use AI were deemed to be more important than was the case during the IBMC session indicating different priorities in the cohorts of lecturers or perhaps a different

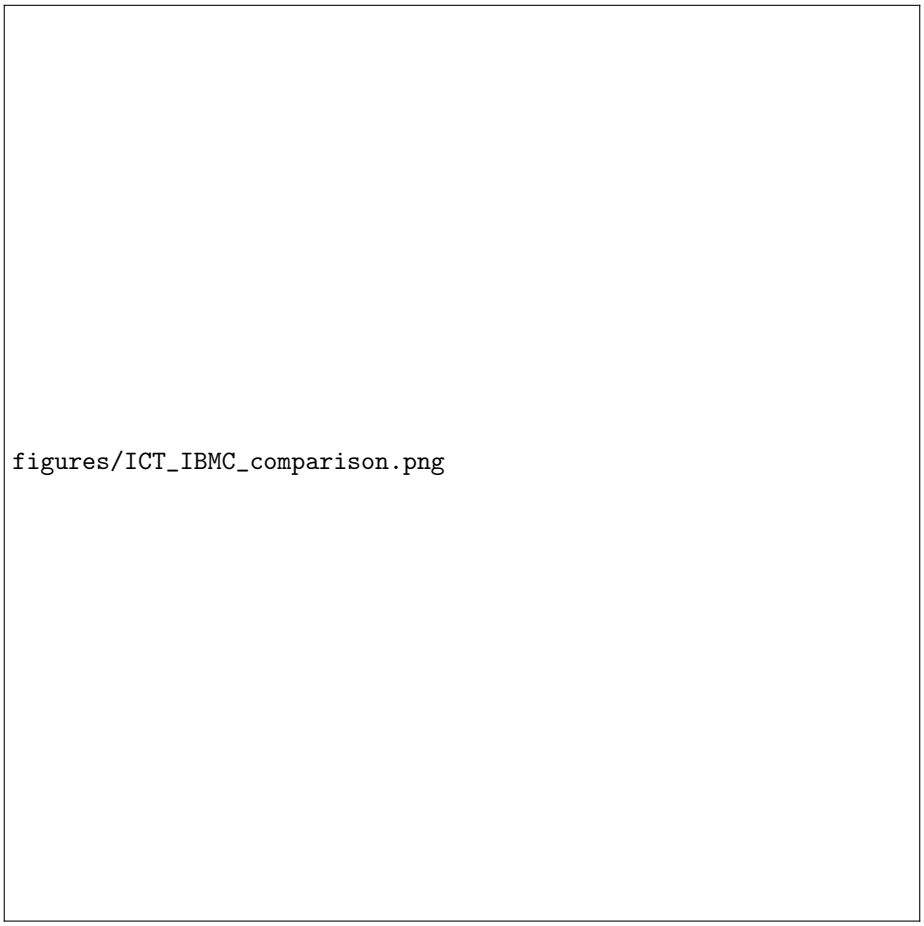

Figure 2: Two cases model for ICT & IBMC

set of contributions between the different lecturers.

This by no means indicates that in the case of these institutes there is more of a focus on one item or the other but it does indicate the direction the discussion took in each of the Institutes and can serve as an interesting pointer for subsequent research into the area and the differences in attitudes between staff in the different institutes.

Taking the comparison in more of a theoretical dimension the two cases model comparing the case with the largest number of data incidents (IAS) with the Mollick paper which contains a number of practical suggestions on how to include AI in teaching indicates the following two cases model.

In this case there was a significant overlap between the concerns at IAS regarding how to use the AI tools but the codes on the right hand side indicating the paper's suggestions with respect to building AI enabled exercises indicate

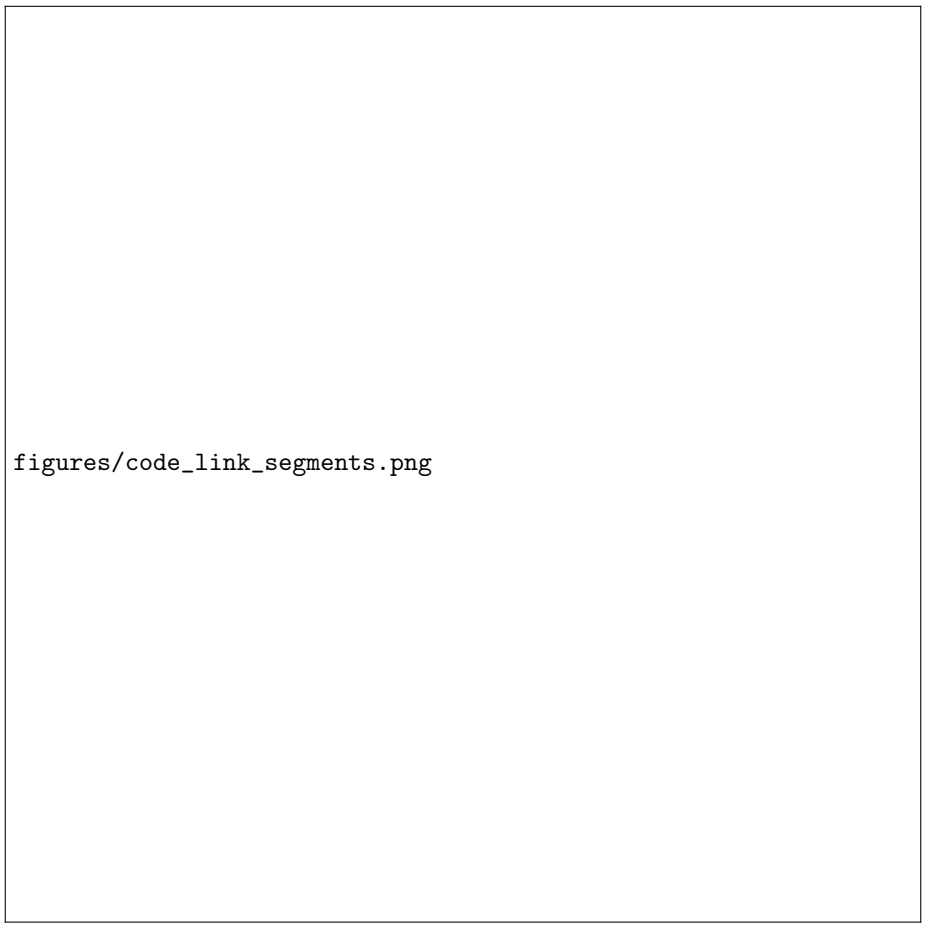

Figure 3: Inset showing the link from the code to the segments in the transcript

that such suggestions have yet to feature in the lecturer perceptions at IAS who are still trying to get to grip with the new AI enabled reality while trying to stick to the idea that AI text can effectively be detected seemingly hoping that the current models of instruction can continue to be followed.

6 Discussion and Conclusion

This preliminary paper and data analysis is but an initial step in an institution like MCAST's approach in dealing with the changes in educational context that are coming due to the profound impact AI is having on our society. The indications from this preliminary qualitative coding exercise is that there are a lot of concerns from our lecturing body and such concerns were elicited at an early stage by raising awareness of the tools available and the methods at

Figure 4: 2 Cases model IAS & Instructors as Innovators (Mollick & Mollick 2024)

hand that leverage generally available AI tools. The results above indicate that there is an overall sense of disbelief and a wish that AI detectors continue to function in order for lecturers to have a technical solution that protects them from students submitting artificially generated assignments.

There also seems to be a certain lack of awareness as to how AI tools can facilitate the process of course and teaching development even though there is a general acknowledgement that AI tools have a profound effect in the classroom. The story told through these codes is the fact that there are a lot of lecturers who require guidance either through policy or through practical guidance to deal with tools that they are in general unfamiliar with. The insight that lecturers are experts who can guide students is also very clear and indicates that AI is no replacement for a skilled lecturer as can be seen from the risks associated

with unsupervised use of AI as well as the issues related to an AI 'hallucinating' answers. Unsupervised students run the risk of being given incorrect information and it is ultimately down to the lecturers to clearly show students that the information they may have accessed from a 'trusted' source could be incorrect.

AI is now generally available and it must be said that there are clear indications that several students are comfortably using AI tools in order to facilitate their studies. This means that more work needs to be done in this area in order to train educators effectively to understand how to deal with the existence of AI while continuing to do their job. Modern educators have to learn to adapt to uncharted territory where students are able to generate their own learning materials to build information that is useful to them. This takes the agency away from the educator and puts it in the hands of the student but it also raises important points to consider on the role of the educator and the importance of ensuring that pedagogical expertise is used to filter out the possibility that the AI gets things wrong.

Further studies are important at this point in time. This means that although this initial analysis serves as a first step it is important to also include the student perspective and therefore introduce specific student-centred qualitative interviews. Such interviews are scheduled to be carried out through the second phase of the STAR project where students will be requested to use a locally built large language model to perform a task related to the research methods but will then be interviewed qualitatively on their use of AI tools in general. Given a viable set of interviewees it is hoped that a preliminary model for AI use in education can be put together from the various data sources available. Grounded Theory's flexibility in integrating multiple sources of data can serve us in good stead to build a viable hypothesis based on a set of data sources that are very different to each other.

7 Acknowledgements

This paper was financed by Project STAR. Project STAR is financed by the Malta Council for Science & Technology for and on behalf of the Foundation for Science and Technology through the FUSION: R&I Research Excellence Programme.

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