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Multimodal Recontextualization in European University Association Trend Reports

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Master's Thesis

Master's Programme in English Studies

Faculty of Arts

University of Helsinki

March 2023

Faculty: Faculty of Arts

Degree programme: Master's Programme in English Studies

Study track: English Philology

Author: Timo Kalliokoski

Title: Multimodal Recontextualization in European University Association Trend Reports

Level: Master's Thesis

Month and year: March 2023

Number of pages: 57

Keywords: Multimodality, recontextualization, semiotic mode, visual encoding

Supervisor or supervisors: Tuomo Hiippala

Where deposited: Helsinki University Library

Additional information:

Abstract: This thesis studies multimodal recontextualization in European University Assocation Trend Reports. Recontextualization refers to the changes that are required for parts of discourse to move between contexts. Regular reports are published by the European University Association on the topic of the Bologna Process and its implementation across Europe. Two research questions guide the study:

1. What evidence of recontextualization can be found between textual elements and diagrams in higher education policy documents?
2. To what extent can multimodal analysis improve our understanding of recontextualization?

The primary multimodal framework rests on Bateman's (2011) abstract model for semiotic modes. These modes are realised through application of semiotic resources on a material substrate while being interpreted contextually based on an understanding of the relevant discourse semantics. Of particular note in this study are the semiotic modes of text-flow, page-flow, layout and the diagrammatic mode.

The typology used for categorising and operationalizing diagrams is based on that of Engelhardt and Richards (2018). The most common types of diagrams in the dataset are various bar charts, table charts and choropleth maps. The total number of diagrams in the corpus is 212, of which these three categories form 88%. The way information is visually encoded is considered in terms of the principles of *arranging*, *varying* and *linking* performed by the diagrams.

The recontextualization analysis proceeds by considering the transformations that take place when information within text-based contexts is transferred or translated over to a diagrammatic visualization. The methodology for this follows Van Leeuwen (2008), and primarily concerns the transformations of *substitution*, *deletion* and *legitimation.*

The analysis shows that the diagrams in the dataset are used for three primary purposes: The summarization of information presented elsewhere, reinstatement of in-text claims for additional legitimation, and the presentation of temporal information in order to allow for comparison between trend reports or participating countries. The recontextualizing transformations of *substitution* and *deletion* are present in nearly every diagram in the dataset, while *legitimation* is used more conservatively to provide support for claims made in the text. These recontextualizations take advantage of tresources offered by the diagrammatic mode that allows them to present information by using otherwise unavailable dimensions such as temporal or the spatial.

The results support the notion that analysis of recontextualization can be successfully combined with a multimodal approach, and this has been found to potentially support both approaches. This is in line with the interest multimodal researchers have shown in the demarcation of and transition of meaning between semiotic modes.

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1 Introduction

In the unfortunate event that you witness an accident, you may find yourself speaking about it to various people, including your spouse, a police officer, or a member of the press. Thinking about what you told them afterwards, you may notice that the descriptions you gave were not identical. While the event you are referring to is the same, you may find that you highlighted some details and left some out, depending on who you're talking to. We might say that you essentially recontextualized the discourse of the accident, that is, referred to the same general idea in varying configurations of foregrounding and backgrounding of details.

While this is a simplification, recontextualization as a discourse feature in texts operates in roughly the same way and is a widely known and studied phenomenon, investigated in education and language by the likes of Bernstein (1986), van Leeuwen (2008), and Wodak and Fairclough (2010). However, much less attention has been paid to the same process of recontextualization in multimodal contexts where other forms of communication besides language are present. This leads to the question that inspired this study: Does the recontextualization of discourse elements extend beyond language to other 'modes' of communication, such as diagrams? While different texts tend to change and reproduce elements in any particular discourse to better fit the new contexts in which they are produced, it is unclear if this change also takes place on the level of other modes of communication used by the same documents, or if they remain unchanged through different uses.

To answer this general question, I will direct my focus to the diagrams found within policy documents. I will first conduct an analysis of the recontextualization of discourse elements found within European Union higher education trend reports, which describe the progress of policy processes. Secondly, I will conduct a multimodal analysis of the diagrams found in the documents related to those processes. Finally, the findings of these two approaches will be contrasted to see if they are complementary and if they provide novel information when used together, as opposed to being used for wholly separate analyses. By doing so, the study aims to answer two research questions:

- What evidence of recontextualization can be found between textual elements and diagrams in higher education policy documents?

- To what extent can multimodal analysis improve our understanding of recontextualization?

Studies within multimodality research (a field slowly coming to its own, see for instance Bateman, 2019, p. 297) have generally not considered recontextualization in the realm of diagrams, and this thesis will act as a proof of concept in using these methodologies in investigating them. Due to their multimodal nature and limited subject matter, I expect the textual elements of the diagrams to be somewhat uncomplicated and consistent with the text that surrounds them. The suggestion here is that while the content or what is being expressed may not necessarily be changed, exactly how it is expressed may prove a fruitful avenue of investigation. Any changes in the structure of the diagrams may also be informed by changes in the text of the documents, and vice versa.

The specific type of policy discourse considered in this study is the discourse surrounding higher education, particularly in relation to the European Higher Education Area (EHEA). Formed by the higher education systems in 49 member states across Europe in 2010, the stated purpose of the EHEA is to enable collaboration and partnership in higher education between its members, as well as to foster discussion and cooperation on education reforms with non-members ("European Higher Education Area and Bologna Process", online). The EHEA continues the work on university reforms and quality management that was started by the Bologna Process.

The Bologna Process ("Bologna Process in the EUA", online) is a wide-ranging long-term process of higher education reform and unification within the European Higher Education Area. The beginning of the process is marked by the Bologna Declaration (1999), signed by European Ministers of Education from 29 countries. The main goals of the process include implementing a system of "easily readable and comparable degrees" based on a three-cycle system (bachelor, master and doctoral levels) and a joint system of credits (ECTS) in the countries participating, with the further aim of promoting mobility and co-operation between the countries ("European Higher Education Area and Bologna Process", online).

These goals have been implemented in various ways and to various extents in the different participatory countries in the last 20 years since the progress began, as exemplified by the comparative studies such as Wodak and Fairclough (2010). As the

process has progressed, more countries have joined the EHEA and begun implementing these Bologna-informed changes accordingly, with 49 countries currently participating ("Bologna Process in the EUA", online). Due to the large number and wide variety of countries involved, there is significant diversity in the extent to which changes have been implemented and the measures taken. This diversity offers a range of topics for comparative research and requires the EU and relevant parties to follow the status of the process closely. One way in which this is done is through the European University Association's quasi-annual Trend Reports in Higher Education that this study will use as its primary material.

Closely related to the creation of the EHEA is the concept of a Knowledge-based Economy, in which knowledge and learning are commodified and seen as important building blocks for national and pan-European economies (Veugelers and Mrak, 2009). This interrelation between economic and educational policy suggests that the consequences of either are amplified by their effect on the other. Furthermore, considering the two fields of policy as intertwined lends itself to a more grounded critical analysis of the ideological choices made in policy documents regarding higher education. This also acts as a further justification for conducting research in the area, as the interests of parties outside academia are also attracted to the consequences of such policy.

2 Theoretical Framework

This chapter will form an overview of the primary theoretical framework used in this study. I will first describe the basics of multimodal research and introduce the semiotic modes of text-flow and page-flow, as well as elaborate on the characteristics of the diagrammatic mode in Section 2.1. After this in Section 2.2. I will define the concept of recontextualization, and particularly consider its prior application in the analysis of policy documents. Finally, I will review the applications of recontextualization in multimodal contexts to set the basis for the analytical methods used in the study.

2.1 Multimodal Analysis

In this section I will introduce multimodality as an developing discipline and a phenomenon. I will explain the basic principles of multimodality to the extent that they are relevant to the study. The primary source of approach will be the application of multimodal theories to policy documents and their multimodal structure. I will then consider the viability of combining this with the analysis of recontextualization based on previous research, and briefly discuss the limits and implications of this approach.

2.1.1 The Study of Multimodality as a Phenomenon

The study of multimodality as a phenomenon begins with the notion that language is not at the centre of all communication (Iedema, 2003, p. 39). Instead, language as speech is usually accompanied by “gestures, posture, facial expression, and other embodied resources such as physical distance, stance, movement or stasis” (ibid.), while written language features typographical complexity usually supported by “frames, colours, icons, diagrams and so on” (Bateman, 2014, p. 145). Language is then rarely presented in isolation, but more often joined by, contrasted by, or subsumed by other semiotic modes that it operates with.

Semiotic modes are at the very centre of multimodal research as a key theoretical concept, and modes are considered tools that each realize different types of communicative work in a way configurable by their user (Jewitt, 2009, p. 15). They are sets of conventions and materialities through which meaning is conveyed. While their consideration is vital in order to understand multimodal phenomena, pinning

down their definition or providing an exhaustive list is far from elementary, though for the mutable quality of its target of inquiry this may be in fact be very suitable. (Kress, 2009, p. 54) refers to mode as "a socially shaped and culturally given resource for making meaning", and offers the examples of "image, writing, layout, music, gesture, speech, moving image and soundtrack".

Bateman (2011, pp. 20-22) introduces a generic model of a semiotic mode with three strata. From this a definition of a semiotic mode can be drawn as requiring "a material substrate to carry the semiotic resources" that require discourse semantics to be contextually interpreted. Discourse semantics refers to the unfolding discourse in which a semiotic code is embedded (ibid., p. 21), which is to say that it provides the context in which interpretations take place. This suggests that the interplay of multiple semiotic modes together will also be affected by the ability of the observer to make sense of concurrently occurring discourse semantic interpretations. Knowing that the Trend Reports represent a genre where the results of surveys are analysed within a particular layout structure enables us to correctly interpret whatever is encountered on the pages, by way of situated discourse interpretations (ibid, p. 22).

To understand the way in which these interpretations can take place, attention must be paid to the structure of the page in which the modes appear, as the page itself is the material substrate (ibid., p. 24) on which the patterns carrying meaning can be expressed. This means that unit of the page is the basis on which all of the meaning created within the trend reports operates, as the affordances and limitations is provides informs what kinds of semiotic modes can be active on it. The page as a material substrate allows for the presence of various semiotic modes, which Bateman (ibid.) explains:

> [--] material substrates are typically sufficiently 'dense' that they offer a rich potential for carrying simultaneous patterning; that is, their materiality can be articulated simultaneously in a variety of ways independently of one another.

The Trend Reports are page-based documents structured through the semiotic mode of layout, primarily employing text-flow and the diagrammatic mode for expression of meaning. As Waller (2012, p. 236) notes, the document as "an object with borders, with a declared aim, with a defined authorship, and within a recognized genre" is what a reader traditionally encounters while reading texts. While digital in format and therefore potentially relatively free in form, the Trend Reports in this study abide by traditional constraints such as distinct graphic zones (ibid., p. 237) in the page-

based layout. These graphic zones support the discourse semantics of the page, reinforcing the genre and commonly shared understanding of its functions. As Bateman (2011, p. 22) notes, “discourse semantic rules control when and how world knowledge is considered in the interpretation process”, which here would include the onset of interpretation based on an understanding of the genre.

Based on the three strata considered by Bateman (2011, p. 26), three important modes emerge in the page-based layout: text-flow, page-flow and image-flow. Here it should be noted that the mode of image-flow has limited applicability in the materials at hand. Image-flow is “used to organize sequences of graphical elements” (ibid.), whereas the materials of this study largely feature solitary diagrams that are in no discernible sequence in relation to other graphical elements. The diagrams themselves do internally feature sequences of graphical elements, but this can be explained through analysis of the diagrammatic mode. As such, the two modes of text-flow and page-flow will be accompanied by the diagrammatic semiotic mode in the next Section, where they will be described in more detail as I consider their relevance to the study.

2.1.2 Text-flow, Page-flow and the Diagrammatic Semiotic Mode

The mode of text-flow is founded on the “visual line of the developing text” (Bateman, 2009, p. 61), which is a common way in which to organize text. The distinctive feature of text-flow as a mode is that "the spatial nature of the page is not made to carry significant meaning in its own right” (ibid.). The analysis in Hiippala (2016, p. 73) on research monographs appears to suggest the same, inasmuch the research presented in the Trend Reports is governed by similar restrictions as monographs. I expect the text-flow of the documents considered in this study to be the main focus of the page, with the occasional visualization or graphical element included. The hypothesis here is that policy documents do not generally make use of the layout space to convey additional meanings. This will mean that the danger of competing interpretations is less apparent than in other, more visually striking document types such as tourist brochures or advertisements. However, as noted above, few manifestations of language are entirely monomodal, and so care must be had in treating these documents as such. Diagrams and diagrammatic elements, as well as plain images by themselves disrupt the flow of the text and usually enhance, contrast or add to the text they are surrounded by. This suggests that besides text-flow, the visual elements

are also worthwhile choices for study in terms of recontextualization analysis, as their usage is likely to extend the rhetoric utilized in the written text.

As Iedema (2003, p. 38) remarks, the visual turn and increased multimodal expression extend to bureaucratic and corporate organisations as well, in addition to the computational sphere that Iedema considers "a very influential engine behind the renegotiation of what different semiotics are made to do" (ibid.). The extended visuality of the policy documents studied in this thesis is also expected to reflect this same progression – a hypothesis preliminarily supported by a brief glance at the documents in question. This progression will be elaborated on in Section 3.1.

While text-flow already affords me with tools to consider the linear progression of a document's contents, I am also interested in the vicinity of multimodal elements regardless of linearity. The semiotic mode of page-flow (Bateman 2011, p. 26) allows me to consider the rhetorical structure of the page. Here the assumption is that the meaning-making of the semiotic modes begins at the page level. The semiotic mode of page-flow uses "proximity, grouping of elements, framing and other visual perceptual resources in order to construct patterns of connections, similarity and difference" (ibid.), which can be perceived holistically and promptly. While page-flow may guide the observer based on spatial features and convention, competing interpretations may arise depending on the discourse semantics available (ibid., p. 33).

A multimodal understanding of page-flow is vital to understanding the documents, as the textual and diagrammatic elements within them have been designed to be understood together (see also Bateman and Schmidt, 2012, p. 48). This is not to say the diagrams and tables could not have been initially designed to be used in an executive summary slideshow and simply applied to the document as ready-mades, but that their placement in the context of the trend report's pages has been intentional. This suggests that they should also be considered to contribute to the meaning across semiotic modes, which will be considered in Section 2.2.3.

To reiterate, the the analytical unit for this study is the page, which in multimodal analysis can be approached through the semiotic modes of text-flow and page-flow. As Bateman (2011, p. 34) discusses, it is vital to ensure that the correct semiotic mode is used as the framework for reading a page-based object. Otherwise, the application of erroneous discourse semantics may lead to a misunderstanding of the information received. Assigning too much relevance to spatial grouping or failing

to appreciate the linear unfolding of information may prove the difference between comprehension and a complete lack of understanding.

The final element within the study of multimodality that requires explanation is the nature of diagrams. The study of diagrams is a rich and varied field on its own, with studies ranging from the descriptions of logical diagrams (Lemanski and Demey, 2021), empirical studies in cognitive science (Sugio, 2018), data visualization principles (Lechner, 2020) and topics such as representing the structure of computational models (Marshall et al., 2021). The history and variety of the field makes it a useful source for qualifications and typologies for this study, but to understand diagrams from the perspective of multimodal research, we must concentrate on how diagrams are used for making and exchanging meaning.

The diagrammatic semiotic mode provides the logic needed to make sense of various diagrams (Hiippala and Bateman, 2022). Diagrams typically integrate expressive resources such as various types of images, written language and diagrammatic elements into a common discourse structure. As Engelhardt and Richards (2018, p. 203) note, diagrams are used to bring out the relationships between the illustrated pieces of information, aided by conventional tools that may be referred to as specifically diagrammatic elements. These diagrammatic elements guide the reader to (sometimes literally) connect the dots between an image and its caption, textual elements and the visuals they pertain to. They include connecting lines, captions and other abstract graphical elements that primarily exist to aid the reader in understanding what is being represented. The scope, quality and look of diagrams varies greatly, but Hiippala and Bateman (2022, p. 5) have identified the expressive resources typically utilized, which include layout space, illustrations, written language, and lines and arrows. Not all of these expressive resources have to be present at the same time, but their collaboration underlines the inherently multimodal meaning-making that diagrams are built upon. The selection of these resources is informed by the context provided by the discourse that is being presented, which can be approached using the concept of recontextualization.

2.2 Recontextualization

In order to understand how diagrams participate in meaning-making together with the text-flow they’re situated in, we must understand how recontextualization works. As previously introduced in Chapter 1, recontextualization is a process of information

transfer between contexts that involves contextually informed alterations in how the information is presented (van Leeuwen, 2008, p. 6). Recontextualization in some sense is inevitable in any meaning-making process, as any production of meaning will inherently introduce it into a new context. The basis of recontextualization analysis is in discovering what is highlighted and what is left out in the transfer from one context to another. In order to expand the scope of the analysis outside of purely linguistic phenomena, the first thing required is a clear definition of what recontextualization analysis entails.

2.2.1 Defining Recontextualization

Considering recontextualization from a novel multimodal perspective requires establishing what it entails as a framework for discourse analysis. This section will present an overview of the basic principles needed to understand and utilize recontextualization as such. While recontextualization appears as a pertinent concept in a variety of fields, including education and communication, narrowing it down is necessary to maintain the intended scope of this study.

This study will utilize the social semiotic framework of Van Leeuwen (2008, p. 17). Social semiotics is an approach that situates communication to particular social settings (Kress, 2009, p. 54), and focuses on the use of semiotic resources within specific practices instead of describing semiotic modes through intrinsic systematicities or laws (van Leeuwen, 2004, p. xi). These specific practices and the differences between them are what necessitate the process of recontextualization. Adjusting for context and the semiotic resources available is required for discourses to be transferred between differing practices. However, despite its origins in social semiotics, the framework of recontextualization is often used in contexts where language is the primary or only semiotic mode considered (e.g. Wodak & Fairclough, 2010).

In Van Leeuwen's framework the process of recontextualization involves taking a particular discourse from one context to another, where it is transformed in some way by the transfer. Different perspectives may be highlighted, actors backgrounded, or communicative functions altered, for instance. The recontextualization may be realized in a diachronic manner between different media or constrained to text-internal transferrals. An example of wide-ranging recontextualization would be the discourse on climate change, the discussion around

which changes considerably depending on the context, whether it be a global climate panel or a Twitter thread. In the case of this study, the relevant discourse under inquiry is that of higher education policy in Europe, as recontextualized text-internally.

Van Leeuwen (2008, p. 4) views recontextualization from a practice-oriented perspective, where meaning-carrying elements that are moved from one context to another are perceived as representations of social practices, which codify the practices they are part of or represent. This is line with the way in which Björkvall and Höög (2019, p. 8) consider that "[--] in order to understand the (changing) functions of texts in organizational life, it is of crucial importance that they are analysed not only as textual artefacts but as part of social actions in complex professional practices." Viewed from this perspective, analysis of the recontextualization of particular features in a text enables a move from the text-specific contexts to a generalizable level, as the various communicative functions that can be uncovered may point back to the socio-political contexts they emerge from. As Altahmazi (2020, p. 11) states, "[--] recontextualization serves different communicative functions, ranging from epistemic fine-tuning, [--] cultural adaptability, [--] and finally normalization of ideological stances across the source and the target texts.". It is this "normalization of ideological stances" that is of particular interest for this study, as the discourse in question is of a kind with real-world policy repercussions.

2.2.2 Recontextualization in Policy Discourse

Analysis of recontextualization has been a common feature in studies on policy discourse in the vein of critical discourse analysis. For instance, Wodak and Fairclough (2010) have analysed the recontextualizations taking place in the implementation of the Bologna Process in Austria and Romania. The utility of analyzing recontextualization in and between policy documents lies in the interplay between their ostensibly objective and standardized form and the inevitably ideological choices policymakers have to make in drafting them. Analysing the recontextualizations present in further detail offers an opportunity to uncover some of the underlying ideological discourse behind them.

The assumption that ideological patterns can be uncovered through the usage of recontextual analysis can also be found in Wodak (2000, p. 193), who points to the

inherent conflicts of interest between different parties, especially in contexts where policy or public interest are concerned. These differences then manifest themselves as recontextualizations through which the conflicts are handled and ultimately resolved. In the domain of public policy, the stance that the involved parties can finally agree on is irrevocably linked to the transformations the winning side utilizes while recontextualizing the discourse in their favour.

2.2.3 Multimodal Recontextualization

Combining recontextualization analysis with a multimodal approach serves to amplify the utility of discourse analysis for the documents in question. Each of the modes described in section 2.1. heavily utilizes textual matter to convey meaning, but language is by no means the only semiotic mode at work here. Multimodal recontextualization is a document-level phenomenon, which involves realising meanings carried by one semiotic mode using another mode. Through this study the demarcation can be clarified for what it is that each mode is contributing to the whole, and how they interact with recontextualization.

Whereas more linguistically geared studies on recontextualization may consider a number of discourses diachronically as a 'chain of recontextualization' (Van Leeuwen, 2008, p. 14), multimodal analyses have the option to focus on highlighting considerations within the multimodal artefacts in question, as the presence of various modes itself implies a choice from a multitude of expressions for similar discursive features. This text-internal approach will also be used in this study to show the extent to which recontextualization happens within the constraints of a single multimodal document.

Approaches combining multimodal analysis with the critical perspectives of discourse analytical formulations such as recontextualization have remained somewhat uncommon, suggesting a gap in the literature that this study aims to address. Research combining notions of recontextualization and multimodality has been undertaken to some extent in terms of translation, for instance with Altahmazi (2020), who focuses on the interlinguistic translations and multimodal transitions of online news reports. There focus is on the transfer of meaning from one mode to another between instances. Of note, however, is that studies featuring text-internal recontextualization from one mode to another are largely absent. This applies in particular to considerations of diagrammatic elements, even though their very nature

invites scrutiny on the way in which they condense the available information around them.

While recontextualization analysis as such remains rare in the multimodal field, other multimodal discourse analytical approaches have been developed, as can be seen in the notion of resemiotization developed by Iedema (2003). Resemiotization refers to the way in which "meaning making shifts from context to context, from practice to practice, or from one stage of a practice to the next" (ibid., p. 41). This suggests that the processes and possibilities of meaning-making also change in tandem with the contexts themselves. The options that discourse participants have when discussing a hospital patient have already been greatly altered by the time they get their hands on the patient report, where the actual physical presence of the patient has been resemiotized into a written report. Between these two situations what or who is being talked about has already substantially changed. Iedema (ibid., p. 50) considers the resemiotization of meaning to be crucially dependent on the materiality through which meaning is expressed.

Bateman (2021, p. 47) expands the notion of materiality by introducing the concept of canvas, which is a given "semiotic mode's materiality when viewed with respect to the specific forms of traces required by that semiotic mode". Here the distinction is between the materiality as is and its role as a canvas that enables the transference of semiotic modes between distinct materialities. What this requires is that "the particular perceptual experiences necessary for recognizing and using the semiotic mode are supported" (ibid., p. 49). This enforces the notion that while the specific material features of the page-based layout should remain the starting point of the analysis, attention should be paid to the co-operation through which semiotic modes transfer meaning between each other.

Kress (2009, p. 125) refers to this this "re-articulation of meaning" as transduction, highlighting the different entities involved in the work that each mode does. In addition to the various materialities on which semiotic modes are built upon, each mode is also dependent on specific entities that they are capable of producing. As he puts it, "Speech, for instance, has words, image does not". (ibid.), marking the necessity for decisions to be made on what kind of tools can and should be used to convey meaning in a different mode.

Iedema (2003, p. 47) notes that this transference of meaning from one semiotic mode to another is never a lossless or completely transparent translation. The

constraints and material realities (or affordances, similarly to the starting point for Bateman, 2014, p. 145) of each semiotic mode forbid some forms of expression from crossing the line to another mode without issue. Iedema suggests that dealing with this discrepancy may involve privileging particular domains of human experience over others. This notion is clearly of great interest for the purposes of the current study, as we move on to analyse what kind of information is privileged and represented through recontextualization.

3 Materials and Methods

In this Chapter I will describe the European University Association Trend Reports used as the primary materials for the study, as well as the recontextual and multimodal tools implemented during the analysis. The Trend Reports are given a brief overview in Section 3.1. that considers their significance in relation to the higher education policy background discussed earlier and justifies their choice as the target of this study. Relevant aspects of the reports will be considered in detail during the analysis.

I will then move to Section 3.2. to describe the recontextualizing transformations that form the basis of the discourse analysis within the study. These are considered in relation to the transformation categories presented by Van Leeuwen (2008), and the necessary contextual adjustments are made explicit. In Section 3.3. I will present the methodology of the multimodal analysis utilized and present the visual encodings used to identify diagram types. Finally, I will briefly discuss the usage of the multimodal methods along with the recontextualization analysis, and any noteworthy aspects arising from that combination.

3.1 European University Association Trend Reports

Chosen to represent the discourse within the European Higher Education Area, the materials used in this study consist of 10 trend reports by the European Universities Association. The corpus used in this study is presented in Table 1.

Table 1. Trend Reports and Their Designation.

Published title	Publication year	Designation in thesis
Trends in Learning Structures in Higher Education	1999	Trends I
Towards the European Higher Education Area: Survey of Main Reforms from Bologna to Prague	2001	Trends II
Trends 2003: Progress towards the European Higher Education Area	2003	Trends III
Trends IV: European Universities Implementing Bologna	2005	Trends IV
Trends V: Universities Shaping the European Higher Education Area	2007	Trends V

Published title	Publication year	Designation in thesis
Trends in Quality Assurance	2009	Trends VI
Trends 2010: a decade of change in European Higher Education	2010	Trends VII
Trends 2015: Learning and Teaching in European Universities	2015	Trends VIII
Trends 2018: Learning and teaching in the European Higher Education Area	2018	Trends IX
Doctoral education in Europe: Current Developments and Trends	2022	Trends X

The reports range from 1999 to 2022, and each feature descriptions of the current trends in higher education as well as visions of the future according to the joint goal of the EHEA. The form of these trend reports is not entirely standardized, but they feature a consistent approach to the topic of higher education and its development in more than 20 years. The materials enable both policymakers and the public to follow the implementation of the Bologna Process from its inception to this day through the constantly evolving data presented in the reports.

The variation and diachronic scope of the trend reports present some features that the study needs to take into account. The trend reports roughly conform to a progression from monomodal to multimodal documentation, meaning that the earlier documents are sparsely populated by diagrams and other visual features besides text, whereas the latter ones have a much larger variety present. This variation means that the approach used must be flexible to remain consistently applicable to the data, even though the data is somewhat uniform in its genre features. For this reason the first two of the ten trend reports will only receive a cursory overview due to the low variety in the visualizations. Of the documents here considered, the diagrams and visualizations are mostly of the statistical chart variety, although several maps and other outliers exist as well.

The trend reports are readily available online in their directory on the European Universities Association's website. Due to their nature, no ethical issues are considered to be present in analysing them, as they are intended to be used as tools for public policy and therefore by their nature invite closer scrutiny by the public. The accuracy of data represented in the reports and the representativeness of the

illustrations is not considered in this thesis, nor are any jurisdictional claims made in published maps to be considered relevant to this study.

3.2 Recontextualizing Transformations

The analysis of recontextualization in this study is undertaken through the use of recontextualization chains (van Leeuwen, 2008, p. 12), which take the social practice codified in the discourse and show the way in which it passes through different processes that instill it with new recontextualized meaning. The recontextualization chain is the starting point for recontextual analysis, helping to identify the elements recontextualized and the points at which they bear consideration. To utilize them, I will consider the organization of the trend reports and mark out discourse elements adjacent to the multimodal features in the documents, to be further considered concurrently with the multimodal analysis.

Additionally, the recontextualizations taking place are analyzed in terms of transformations, through which the fore- and backgrounding taking place in the recontextualizing process can be uncovered. The list of transformations used by van Leeuwen (ibid., pp. 18-22) are presented in Table 2.

Table 2. Recontextualizing Transformations.

Transformation	**Description**
Substitutions	The transformation of elements from one semiotic element to another, or the move between generalized and particularized actions.
Deletions	Leaving out features of the discourse, deleting the actor in favour of the action.
Rearrangements	Changing the order in which things take place or are presented.
Additions, which consist of the following:	
Repetitions	Concept formation through synonymity and repetition.
Reactions	Value judgments through participant reactions.
Purposes	Added explicit references to the reason for the discourse element in question.
Legitimations	Prescriptive language, expressions of necessity and value appeals to justify choices.
Evaluation	Value judgments about the topic at hand.

The focus of van Leeuwen's original system considers its targets from the perspective of the actions and actors themselves, whereas my thesis will mainly concern the resulting documents instead of the governance process behind them. For this reason,

I will focus on substitutions, deletions, and legitimations. These are the transformations I consider more applicable to situations where no direct access to the participants is available. Both evaluations and reactions are presumably rare in official documents, and assuming a diagram is presented with purposes justifying its presence does not seem reasonable. Additionally, the multimodal applicability of certain transformations like rearrangements appears tenuous at best, as the axis on which information is rearranged between modes does not seem clarifiable.

3.3 Multimodal Analysis and Visual Encodings

The multimodal perspective I adopt will be based on Bateman's (2011) concepts of text-flow and the diagrammatic mode, supported in the typology of diagrams by Engelhardt and Richards's (2021) visual encodings. I will first investigate the various semiotic resources that are utilized across each trend report. These will be collected into a corpus of visualizations with accompanying descriptions of the text-flow within the document. I will observe the layout structures and consider the variety present in the corpus.

I will then observe how the other semiotic modes present in the policy documents are recontextualised using the diagrammatic semiotic mode. I will do so by locating and noting the diagrams and diagrammatic elements in each of the trend reports. I will then count their number and categorize them by type, according to the visual encoding principles suggested by Engelhardt and Richards (2021, p. 397), and based primarily on the typology available on datavizproject.com. The visual encodings refer to the way in which the visual components in the diagrams are configured, essentially directing the interpretation of their contents based on the conventions of their form. The visual encodings considered are presented in the following tables.

Table 3 presents the visual encoding through *Arranging*.

Table 3. Visual Encodings through Arranging (based on Engelhardt and Richards (2018) and VisDNA.com).

Visual Encoding	**Description (*and examples*)**
Arranging	The spatial arrangement of the information
Picturing	Configuration and visual appearance of entities shown using methods such as perspective projection (*pictorial/technical illustration)*
Mapping	Two-dimensional layout of physical configurations shown using methods such as cartographic projection (*world map, street map, floor plan)*
Positioning along an axis	Quantities or points in time shown by arrangement along an axis with a measurement scale (*scatter plot, timeline, clock face)*
Proportional partitioning	Percentage of total shown by dividing a given surface area into proportionally sized partitions (*pie chart, stacked bar, treemap)*
Ordering	Order shown by arrangement into a sequential spatial order, or into spatially ordered levels of indenting (*comic strip, bump chart, ordered list, indented hierarchy*)
Grouping by position	Category membership shown by spatial proximity or alignment (*rows and columns in a table)*
Coupling by adjacency	Presence of a given relationship between entities shown by placing one visual component next to another of a similar kind (*icicle diagram, sunburst diagram)*
Nesting	Presence of a given relationship shown by placing one visual component inside another visual component of the same kind (*circle packing)*

The encodings under *Arranging* represent information by spatially arranging visual components to produce meaning. Table 4 shows the visual encodings through *Varying*.

Table 4. Visual Encodings through Varying (based on Engelhardt and Richards (2018) and VisDNA.com).

Visual Encoding	**Description (*examples*)**
Varying	Features that convey quantity, order and category membership
Sizing	Quantities or order shown by varying the surface area of visual components (*bar chart, word cloud, size-ranked symbols on a map)*
Repeating	Quantities or order shown by use of multiples of visual components (*isotype chart, dot plot, dot matrix chart)*
Gradient coding	Order shown by use gradated differences in brightness or saturation, transparency, fuzziness, etc. (*heatmap table, brightness, gradient on a map)*
Colour coding	Category membership shown by use of colour (*subway map lines*)
Shape coding	Category membership shown by use of shape (*traffic sign outlines*)

The visual encodings under *Varying* use shapes, size, multiplication of components and colour to represent quantity, order, and category membership. Table 5 shows the visual encodings through *Linking*.

Table 5. Visual Encodings through Linking (based on Engelhardt and Richards (2018) and VisDNA.com).

Visual Encoding	Description (*examples*)
Linking	Features representing relationships between entities
Connecting	Relationship between entities shown by linking them with a 'configurator component', e.g. a line or arrow. (*flow charts, family trees, network graphs)*
Grouping by boundary	Category membership or relationship shown by corralling visual components with demarcating line, enclosure or shared background (*table, Venn diagram*)

The visual encodings under Linking portray category membership and relationships between various entities. Each of the visual encoding types (arranging, varying and linking) may be used in combination with the others to generate a multitude of varieties of visualization. (Engelhardt and Richards, 2018, p. 207) go on to introduce more fine-grained visual encoding principles and decision-trees for identifying a further range of combinations. For the purposes of this study, the more granular approach presented above will suffice to capture the variety of diagrams present in the data.

The consideration of the diagrams' type and visual encodings will provide an overview of what information they are expected to convey and how they are conventionally doing so. This is enhanced by an understanding of the page-flow within the document. Finally, I will consider the diagrams for recontextualizations present in and around the multimodal features to see how the various transformations have taken place within the document, as well as how their realization is varied depending on the diagrammatic context in question.

4 Results and Analysis

In this Chapter I will provide an overview of the data and results. First, I will map out the types of diagrams utilized in the 10 EUA Trend Reports in Section 4.1. I will then consider them in light of Engelhardt's visual encodings and their variability in Section 4.2. I will observe the changes taking place in-document through analysis of the recontextualizing transformations in Section 4.3. and consider the nature of multimodal recontextualization in Section 4.4.

4.1 Overview of the Data

In this Section I will present the frequency of the visualizations found in my data and their proportion of different diagram types. The entire corpus of the 10 Trend Reports contains 212 visualizations of data (Figure 1).

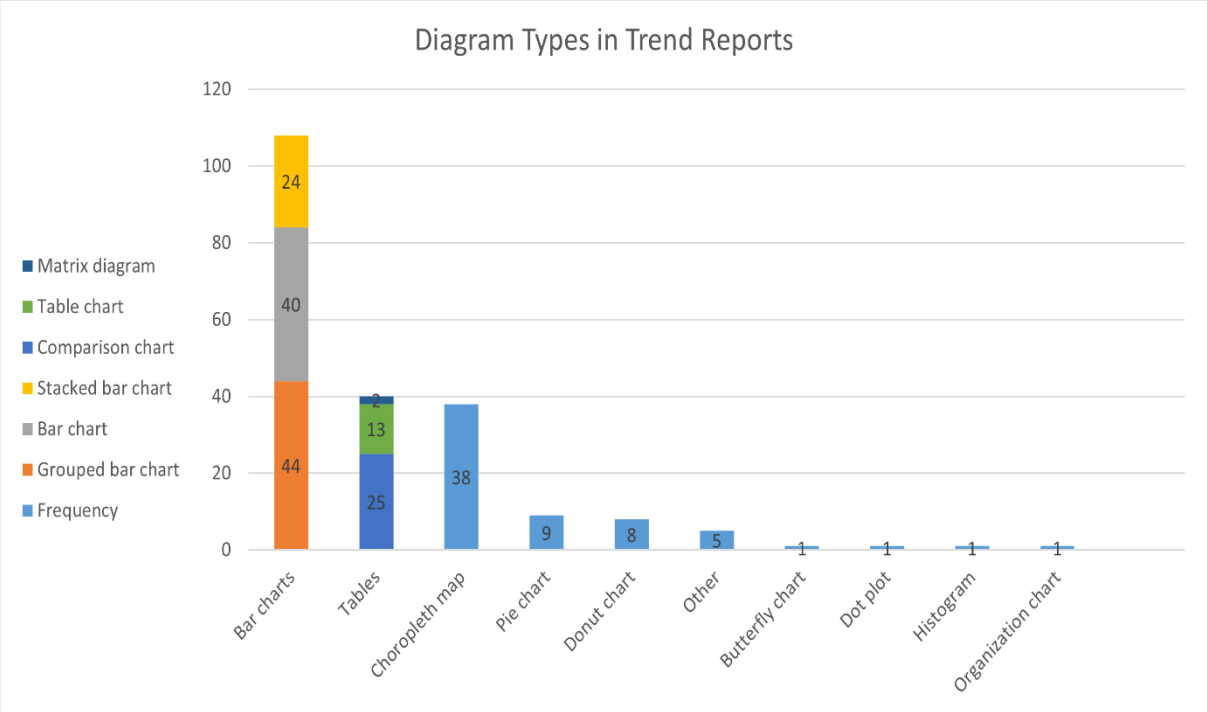


Figure 1. Diagram Types in Trend Reports.

The visualizations are referred to in-text as figures, diagrams and tables. The most common type of visualization overall is the bar chart in various configurations, including standard, stacked and grouped bar charts in both horizontal and vertical positions. Together these account for over half of the diagrams at 108 instances. The second most common visualization type are various tables, including table charts,

comparison charts and matrix charts, totalling 40 across the reports. The last notable group is the consistently appearing choropleth map, at 38 instances. While the various orientations of the bar charts has been noted, no significant difference in their usage for displaying various data has been observed, and so they merit no further consideration.

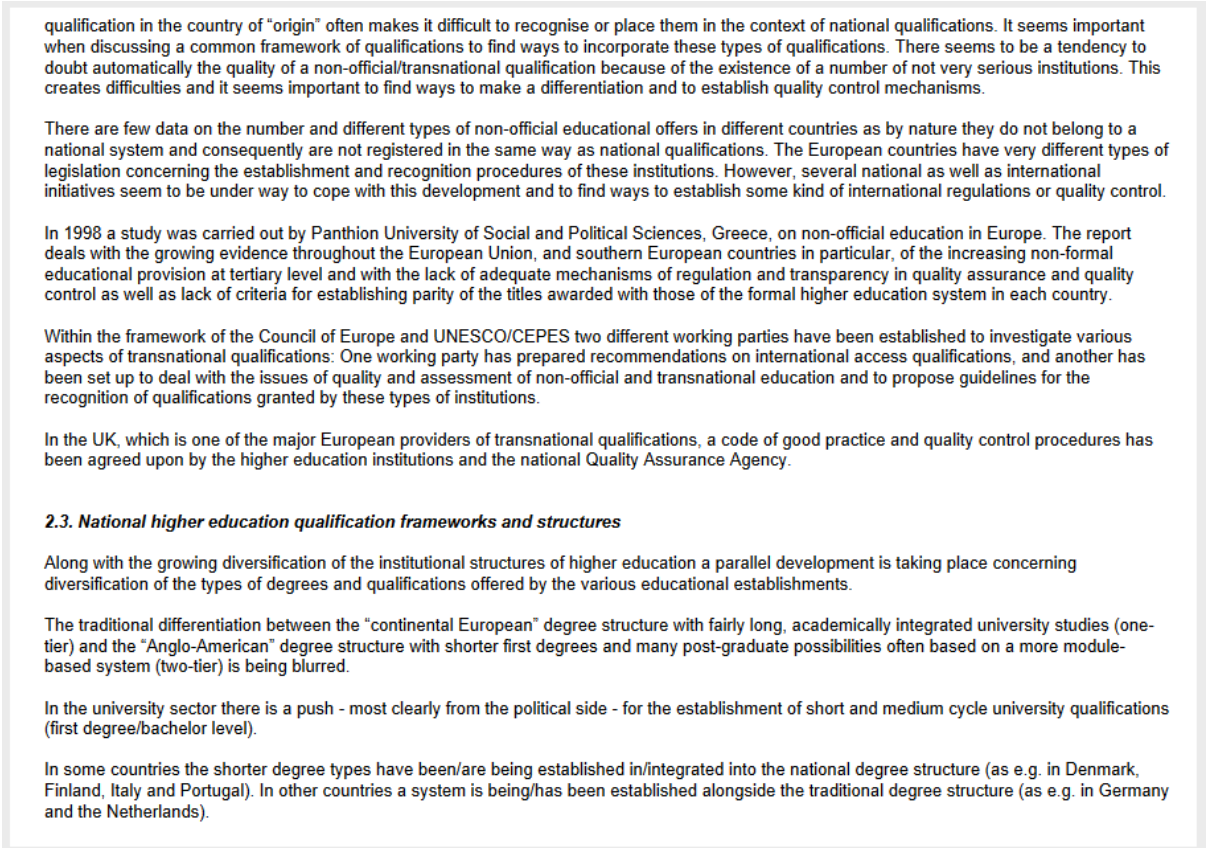
The number of visualizations per trend report is shown inTable 6. The number of visualizations and their proportion to the rest of the document appears to trend towards an increase over time. Trends I (1999) is an outlier, as it only has few visualizations, but uses several pages to display each one of them. Later Trend Reports mostly favour visualizations that fit on one page. Conversely, the short length of Trends X (2022) leads to a large percentage of pages with visualizations, even though their absolute number is relatively low. Trends II (2001) and Trends VI (2009) clearly stand alone as proportionally denser and sparser in visualizations, respectively, than the Trend Reports immediately adjacent to them. The variety between the extent to which the Trend Reports use visualizations ranges from about 1 in 10 pages displaying diagrams (Trends II and IV (2005)) to every other page doing so (Trends X). Around one fifth of the Trend Report pages contain diagrams.

Table 6. Visualizations per Trend Report.

Trend Report (*pages*)	**Number of visualizations**	**Pages with visualizations**	**Percentage of pages with visualization**
Trends I (69)	6	19	28%
Trends II (90)	3	7	8%
Trends III (110)	23	21	19%
Trends IV (66)	3	5	8%
Trends V (80)	26	25	31%
Trends VI (82)	13	12	15%
Trends VII (128)	48	37	29%
Trends VIII (132)	32	28	21%
Trends IX (109)	43	36	33%
Trends X (27)	15	13	48%
Total (893)	212	203	23%

The lack of variety in diagrams in the first two Trend Reports, Trends I (1999) and Trends II (2001), reflects their general lack of visual flair. The organisation of the

pages is consistent with the semiotic mode of text-flow, and the layout features narrow margin space (Figure 2).



qualification in the country of "origin" often makes it difficult to recognise or place them in the context of national qualifications. It seems important when discussing a common framework of qualifications to find ways to incorporate these types of qualifications. There seems to be a tendency to doubt automatically the quality of a non-official/transnational qualification because of the existence of a number of not very serious institutions. This creates difficulties and it seems important to find ways to make a differentiation and to establish quality control mechanisms.

There are few data on the number and different types of non-official educational offers in different countries as by nature they do not belong to a national system and consequently are not registered in the same way as national qualifications. The European countries have very different types of legislation concerning the establishment and recognition procedures of these institutions. However, several national as well as international initiatives seem to be under way to cope with this development and to find ways to establish some kind of international regulations or quality control.

In 1998 a study was carried out by Panthion University of Social and Political Sciences, Greece, on non-official education in Europe. The report deals with the growing evidence throughout the European Union, and southern European countries in particular, of the increasing non-formal educational provision at tertiary level and with the lack of adequate mechanisms of regulation and transparency in quality assurance and quality control as well as lack of criteria for establishing parity of the titles awarded with those of the formal higher education system in each country.

Within the framework of the Council of Europe and UNESCO/CEPES two different working parties have been established to investigate various aspects of transnational qualifications: One working party has prepared recommendations on international access qualifications, and another has been set up to deal with the issues of quality and assessment of non-official and transnational education and to propose guidelines for the recognition of qualifications granted by these types of institutions.

In the UK, which is one of the major European providers of transnational qualifications, a code of good practice and quality control procedures has been agreed upon by the higher education institutions and the national Quality Assurance Agency.

2.3. National higher education qualification frameworks and structures

Along with the growing diversification of the institutional structures of higher education a parallel development is taking place concerning diversification of the types of degrees and qualifications offered by the various educational establishments.

The traditional differentiation between the "continental European" degree structure with fairly long, academically integrated university studies (one-tier) and the "Anglo-American" degree structure with shorter first degrees and many post-graduate possibilities often based on a more module-based system (two-tier) is being blurred.

In the university sector there is a push - most clearly from the political side - for the establishment of short and medium cycle university qualifications (first degree/bachelor level).

In some countries the shorter degree types have been/are being established in/integrated into the national degree structure (as e.g. in Denmark, Finland, Italy and Portugal). In other countries a system is being/has been established alongside the traditional degree structure (as e.g. in Germany and the Netherlands).

Figure 2. Text-flow in Trends I.

The only types of visualizations found in Trends I and Trends II are comparison charts (Figure 3), with a combined total of 9 instances.

Table 1: Higher education systems and degree structures

(Cf. Annex one for definitions of unitary/binary and one-tier/two-tier systems)

Country	The HE System		Degree structure at universities		Doctoral degree structure	
	Unitary	Binary	One-tier	Two-tier	One-tier	Two-tier
Austria		x	x		x (c)	
Belgium (Fr)		x	x (d)		x	
Belgium (Nl)		x	x (d)		x	
Germany		x	x (e)		x (c)	
Denmark		x		x		x
Finland		x		x	x (b)	
France		x		x	x (b)(c)	
Spain	x		x		x	
Greece		x	x		x (b)	
Italy		x(a)	x		x	
Ireland		x		x	x	
Iceland		x		x		x
Liechtenstein		x		x	x	
Luxembourg		x	Not applicable	Not applicable		
The Netherlands		x (f)	x		x	
Norway		x		x	x	
Portugal		x		x	x	
Sweden	x			x	x (b)	
United Kingdom	x			x	x	

a) The higher education system is primarily a binary system, but the non-university sector is relatively small.

b) An intermediate research oriented degree is offered. In Finland and Sweden the degree is an optional choice for having a lower doctorate; it is not a prerequisite for continuing for a doctor degree. In France and Greece the "intermediate" degree is a condition for the doctoral programme.

c) Apart from the award of the doctoral degree the possibility of Habilitation exists.

d) The degree structure of B (Fr) and B (Nl) may be characterised both as a one tier or a two tier system. Most university degrees consist of two cycles and after the first cycle of two-three years the award of a *Candidat/Kandidaat* is given. The award is primarily considered as an intermediate degree as it has academic implications but no civil effects.

e) A possibility of a bachelor as a first degree and a master as a second degree is being introduced.

f) A possibility of a three year first degree - a *Kandidaats* -is being introduced.

Figure 3. Table 1 (Trends I).

These are used to map out particular features across countries, such as the level of three-cycle degree application and admission to higher education. Trends IV is also equally sparse in diagrams besides comparison charts (3 instances), but it features layout features such as two-column text and grey information boxes of text at the beginning and end of each chapter.

The first Trend Report with features that would later become conventional is Trends III (2003). It begins with an illustrated cover page, and has features such as table of contents, separate preface and chapter-based division. Besides the diagrammatic elements, key information is grouped together at the end of chapters in two similar sections, key findings and future challenges. Each consist of bulleted

points with distinctly coloured backgrounds. The layout uses more graphical elements than before, and especially features many more diagrams than before, at 23 instances. The report visualizes data mainly with the use of choropleth maps and bar charts, both standalone and grouped. This report in particular provides consistently legitimating flavour text with several diagrams presented, noting “an interesting divergence” (p. 67) or commenting how “Interestingly, there are enormous country divergences, especially between the universities” (p. 100). Inviting the reader to assess the interest in or merits of the diagram is no uncommon in itself, but rarely in these diagrams is it so explicit and consistent.

Trends V (2007), VII (2010), VIII (2015) and IX (2018) represent the standardization of the trend report, and their visual style is largely consistent, though increasingly colourful. Together these amount for the majority of the diagrams in this study, totalling at 146 instances. The diagram types stay largely static, mostly consisting of various bar charts, comparison charts and choropleth maps, which reflects the frequencies in the overall study. In each of them, diagrams interrupt the text-flow and operate jointly with the text around them, as opposed to Trends I where the modes are kept separate. The text in the documents uses the diagrams for legitimation to support the claims made and substitution to portray information in either a more generalized or particularized manner, with the two substitution types presented in a roughly similar proportion.

The two outliers to both the naming scheme and to some extent, their content, are the Trend Reports on Quality Assurance (Trends VI) and Doctoral Education (Trends X). While both are centered on topics relevant to the Bologna process and the data visualized often deals with the same issues, they have a much more streamlined focus. Both quality assurance and doctoral education are topics featured in most of the other Trend Reports, but including these Reports in the study has brought a surprising amount of variety to the mix of diagram types, including the only histogram in the study.

4.2 Visual Encodings and the Use of Diagrams

In this Section I will address the visual encodings the corpus of diagrams operate by, and then move on to discuss the various uses these diagram types are put to. Based on Richards and Engelhardt’s typology (2018, and VisDNA.com), the primary visual

encodings for bar charts are arranging and varying. The charts are arranged by ordering and positioning information along an axis, and quantities are shown through variation in length and sizing. Grouped and stacked bar charts additionally use colour coding to represent category membership. Various table charts operate through arranging and linking, with the information being grouped by position and the gridlines operating as grouping boundaries. Choropleth maps, on the other hand, use arranging via mapping and varying via gradient coding to show order. The rest of the diagram types identified operate mainly through varying and arranging.

Of Engelhardt's Visual Encoding categories, it is clear that Linking is largely absent from the dataset. This can be explained by the prevalence of primarily statistical diagrams and tables. Examples used by Engelhardt for the encoding of connecting include flow charts, family trees and network graphs, which present relationships, hierarchies, or processes between elements. Comparing this to the dataset, it is clear that the primary information conveyed by the diagrams in this study is proportion. This can be seen in the prevalence of bar charts and the particular type of choropleth map most in use, as the maps in question usually contrast a single percentage variable across countries.

Particularly with bar charts, the information in the text is sometimes translated into the diagram as directly as can be expected between the diagrammatic mode and text-flow, such as with Table 21 in Trends VII (Figure 4).

Recognition Convention is supported by the Lisbon Recognition Committee and the network of national ENIC/NARIC centres that exist in all the Bologna signatory countries.

Trends 2010 data show that awareness of the Lisbon Convention and cooperation with the aware". However, 41% of institutions across Europe are still "not very aware", and there is a minimal drop of this value since *Trends III*. The percentage of staff that is "very aware" of the Lisbon Convention (5%) has similarly only increased by the same 2%.

Table 21. Q25. To your knowledge, how aware are the academic staff in your institution of the provisions of the Lisbon Convention and recognition procedures, in general?

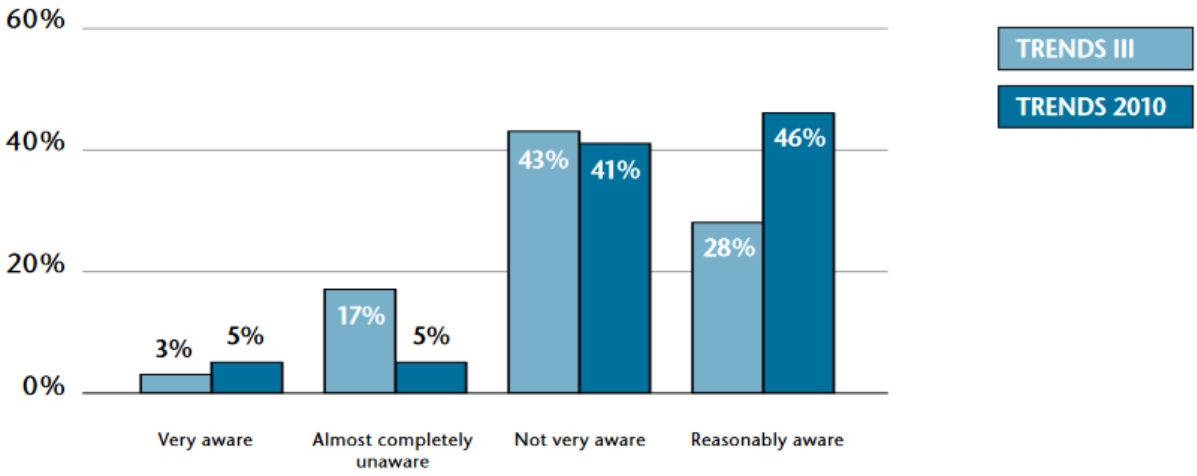


Figure 4. Table 21 (Trends VII).

Here, the text states that "41% of institutions across Europe are still "not very aware", and there is a minimal drop of this value since Trends III.", and the accompanying diagram shows the label 'Not very aware' under two adjacent bars, with the rightmost one being marked with the percentage, 41%, while the one preceding it reads 43%. Here the bar chart simply visualizes the written information by using spatial variation and differences in sizing to convey an approximation of the numerical difference, but there is very little transformation of information between the text and the diagram. Besides the visual aspect, nothing is added and nothing is removed. This is an example of one of the least transformative uses of the diagrammatic mode, but one that is relatively common. Of course, considering the immediate context in which the diagram appears, background information on topics such as the Lisbon Convention is left out. However, the remarkable thing here is the level of apparent equivalence between information presented in portions of the text and the diagram. While perfect

equivalence between modes is generally considered impossible (Iedema, 2003, p. 47), the diagram and text-flow in Figure 4 approach it to a great extent with the understated phrasing of the text and the reuse of those textual elements in the diagram.

One of the more common types of visualization in the dataset is the choropleth map. Massey et al. (1984, p. 292) point out in reference to census data that "choropleth maps -- can be used not only as a vehicle for the presentation of the results of a study but also as a basis for conducting a study and arriving at conclusions.", which is in line with the way that choropleth maps are often used in the Trend Reports. For instance, as mentioned above, in Trends V the reader is invited to arrive at the conclusion the author presents (Figure 5).

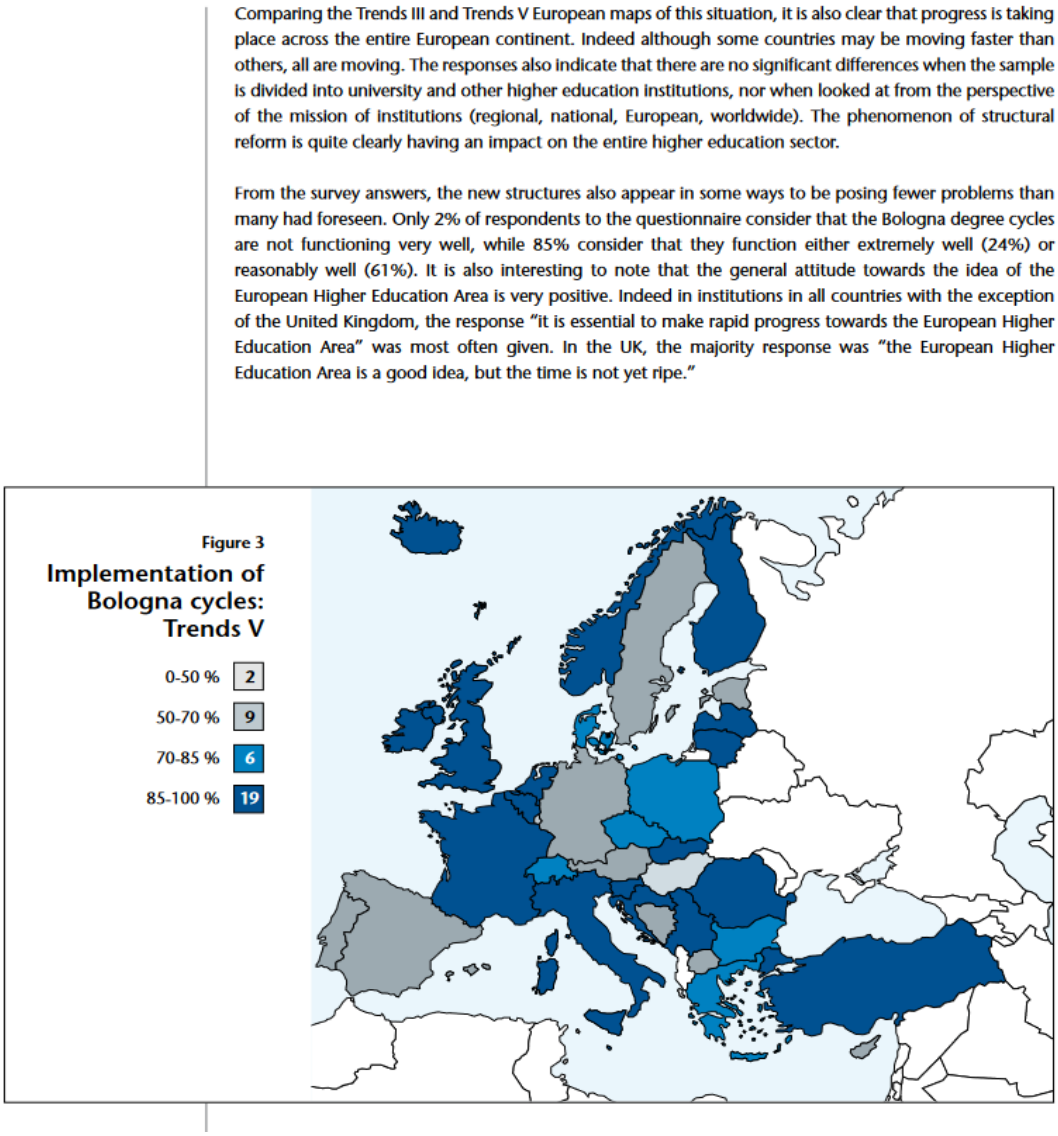


Figure 5. Figure 3 (Trends V).

The diagrams mostly portray data that relates to one or more questions that have been asked in surveys or gathered in an undisclosed manner. As the questions asked are usually marked in the vicinity of the diagram that they provide the data for, it can easily be observed that a question or group of questions generally does not receive attention in more than one diagram. This general principle is broken in situations where different methods of visualization are used to highlight particular features, such as when the same data is first portrayed aggregated in a bar chart and then particularized by country in a choropleth map. A few cases prove further exception to the rule, and in those the data that is already explicitly referenced is then presented with an alternate emphasis by using the same type of visualization as before. Examples of this are the Tables 32-34 in Trends VII, where Table 34 shows overlap with the dataset of Tables 32 and 34 (Figure 6).

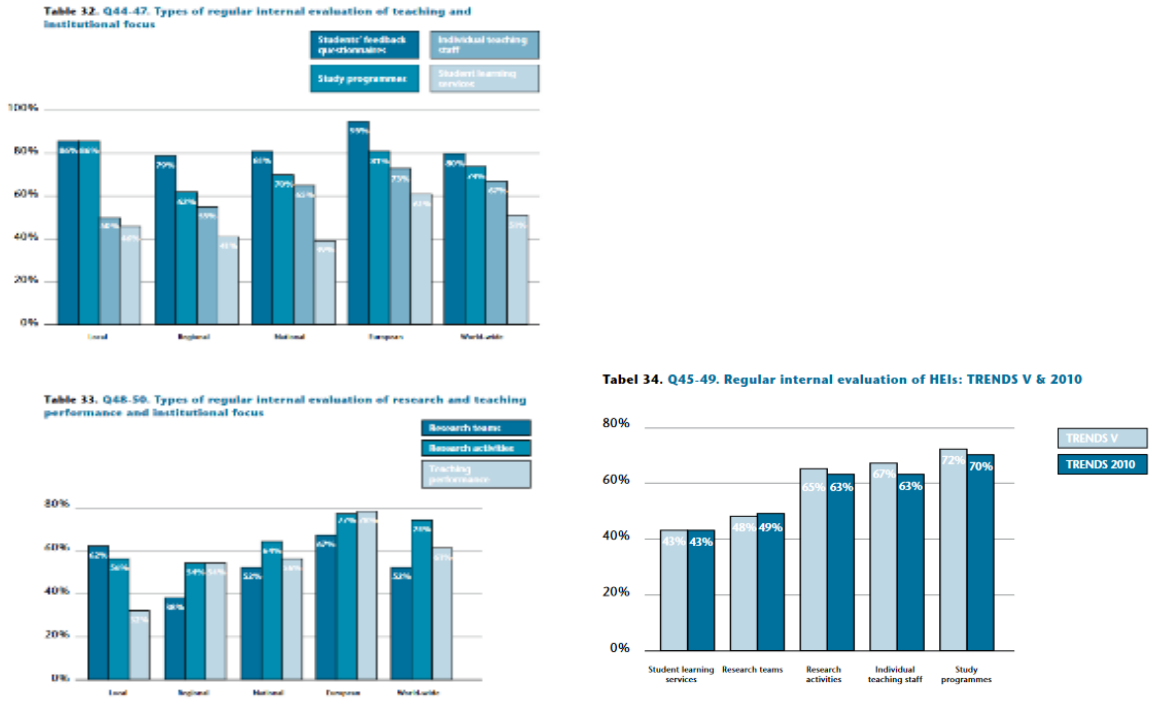


Figure 6. Tables 32-34 (Trends VII).

The two primary uses for diagrams in the corpus appear the summarisation of data and the portrayal of temporal and spatial information supporting it. The favoured method of data summarisation in the reports appears to be the bar chart, which generally portrays numerical or otherwise discreet data. While the choice of diagram type is usually grounded in the visual encodings that it affords, occasionally diagram

types such as pie charts or tables are used to portray similar data with no apparent reason for choosing one over the other (compare Figure 7 below with Figure 4 above), or indeed the bar chart. As each of the diagram types available has differences in both the way they are visually encoded and the transformations that the information presented in them has to undergo, it may be supposed that the optimum choice in those regards has not been consistently considered throughout production of the diagrams. As shown in Figure 7, the table diagram presents information in a way that uses similar guiding principles as the text-flow surrounding it, with only the grouping by position and demarcating lines (as well as limited colour-coding) making the table below distinct from its surroundings on the page. On the other hand, using a bar chart or pie chart to convey similarly structured information would provide the reader with an intuitive understanding of the data at a glance.

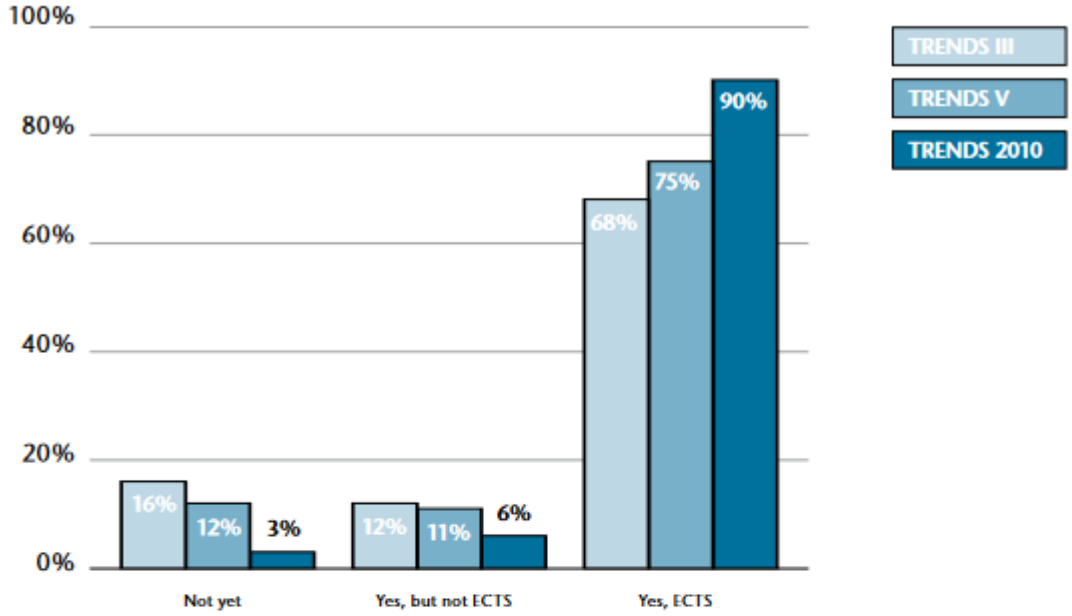
Table 7 Decision making on teaching methods to be used
At your institution, who decides which teaching methods are to be used? (Q. 14; N =301)

Each teacher can decide for his/her courses	77%
It is decided at the level of the faculty/department	43%
The institution has set up guidelines or policies on teaching methods for teachers	36%
Authorities specify some methods in some disciplines or programmes	14%
Authorities generally specify all or most methods	1%
Other	5%

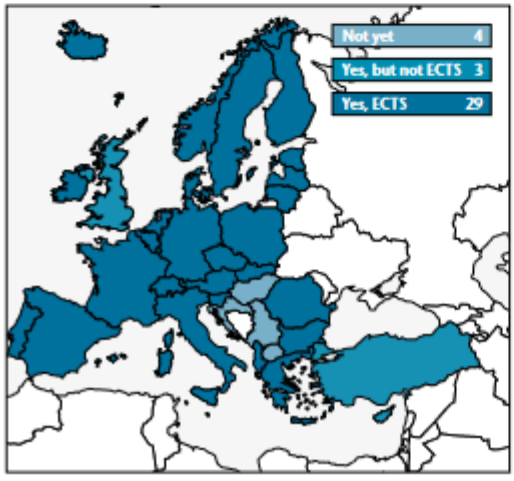
Figure 7. Table 7 (Trends IX).

While summarisation of data in the diagrams may directly use an already pre-existing summary of data present in the text, the portrayal of temporal information takes many forms with different operational logics. A common way of portraying temporal information (i.e. showing changes in answers between Trend Reports) is using grouped bar charts, with each bar representing the response available in one Trend Report. This is a consistently used pattern that often includes temporal information not present in the text-flow. The other common way to represent temporal information is to use a series of choropleth maps, which also convey spatial distribution and its change over time (Figure 8**Error! Reference source not found.**).

Table 15. Q21. Does your institution have a credit transfer system for all Bachelor´s and Master´s programmes?



Map 5 — Trends III (2003)
Credit transfer by largest group of respondents



Map 6 — Trends V (2007)
Credit transfer by largest group of respondents

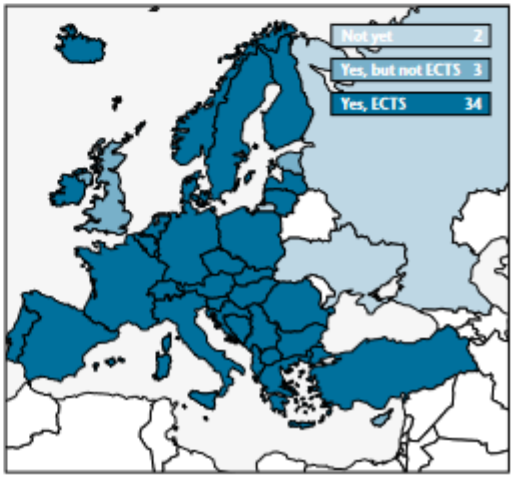


Figure 8. Table 15 and Maps 5-6 (Trends VII).

While the distribution of geographically-based information has been presented in table charts (see Figure 3), the usage of multiple choropleth maps appears to be the only viable option for simultaneously expressing both temporal and spatial

information. The European Union being a geographically oriented entity and constituting the relevant unit for the scope of the Trend Reports may then explain the preponderance of choropleth maps across them. These requirements would presumably be different in contexts where geographical considerations are not relevant. This can be observed from Figure 9, which provides temporal information on a series of axes on a timeline. While the bar charts comparing Trend Reports and the choropleth maps comparing variation between countries operate by showing the temporal variation of a single variable, the diagram in Figure 9 operates on a more complex set of variables.

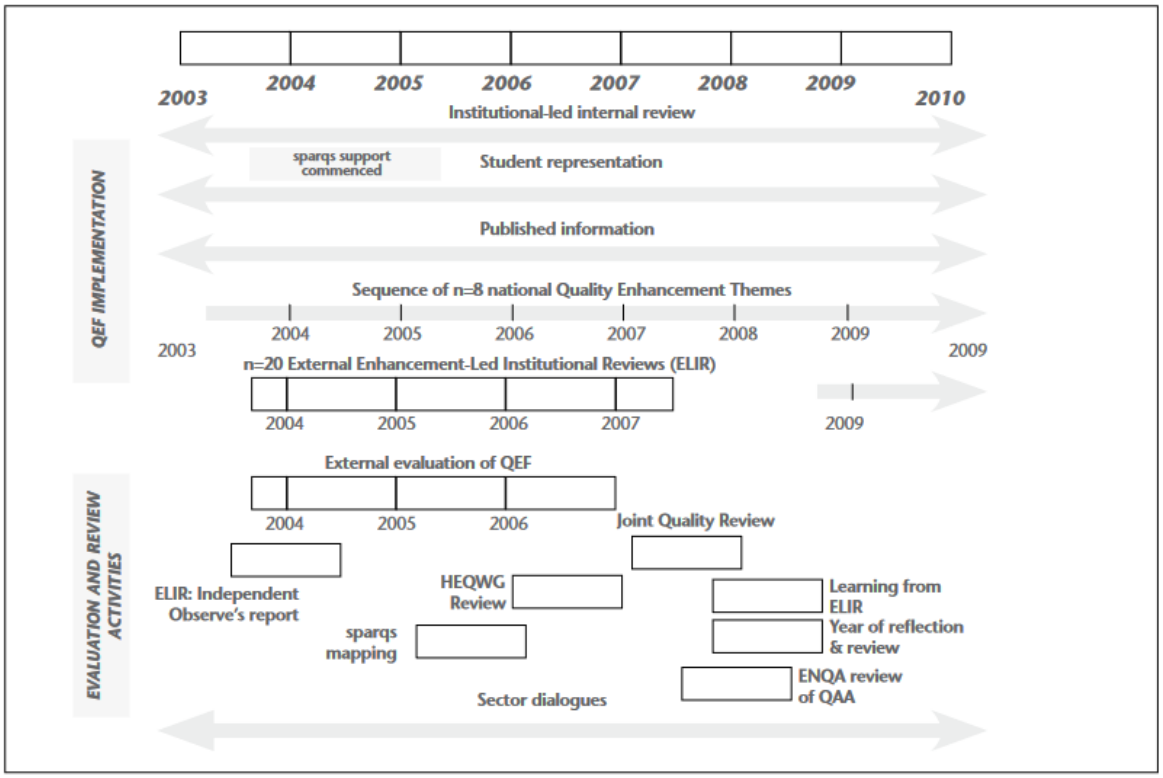


Figure 1. QEF Implementation, evaluation and review

Figure 9. Figure 1 (Trends VI).

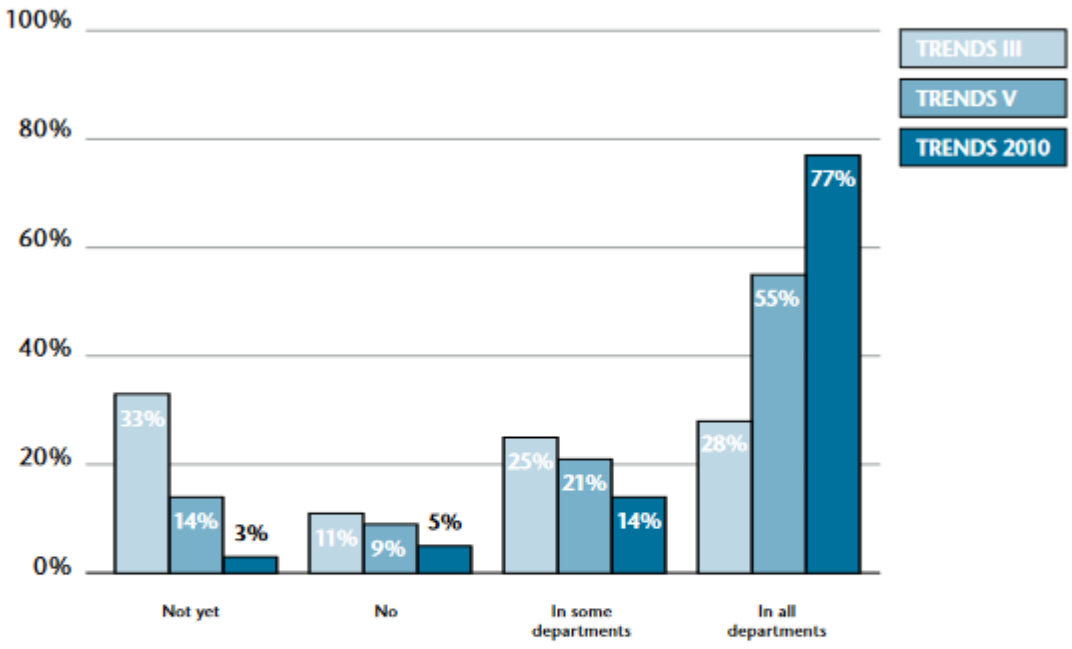
Unlike most of the diagrams analysed in this thesis, Figure 9 aggregates an entire chapter's worth of information on a timeline. This leads to various *deletions* and *substitutions* of generalized temporal information over the particular. Once again, this shows that the available methods for approaching a concept such as temporal variation are much wider than the majority of the corpus might imply. It should also be noted that Figure 9 tests the limits of the current framework of analysis. The

amount of information that is condensed into the visualization presents issues for both the analysis of recontextualizing transformations and the centrality of the page as a unit of analysis. While previously the semiotic mode of image-flow was not given much consideration in this thesis, we can clearly see here that temporal relationships are coded through a spatial extent marked by the arrows and the procession of years ascribed to the timeline.

4.3 Recontextualizing Transformations

In this Section I will go through the results of the analysis by considering each of the recontextualizing transformations, *deletion, substitution* and *legitimation*. The most common type of recontextualizing transformation in the data is *deletion* of certain parts of discourse that appear in the text-flow but are not present in the visualization. This can be explained by both the materiality and the frequency of the diagrams available in the data: There are limitations to how equivalent the presentation of information can be between the text-flow and the diagrammatic mode, as well as a large discrepancy between the proportion of the two in the data. As a result, the diagrams largely act as concise expressions or summaries of data available elsewhere. However, a closer look at the data suggests variation in what kind of discursive material is removed. In several cases, *deletions* as recontextual transformations include the deletion of elaborating data, such as in Table 7 of Trends VII (Figure 10).

Table 7. Q16. Has your institution re-considered curricula in connection with the Bologna Process, particulary with regard to adapting programmes to the new degrees structure?



The site visits show, however, that the interpretation of the changes needed to modify curricula in order to fit with the new degree structure varies enormously from country to country and from institution to institution, as does the introduction of student-centred learning as can be seen in Section 2.3 on building flexible curricula.

professions falls within the scope of Directive 2005/36/EC on the Recognition of Professional Qualifications. The exception is law, which has its own dedicated Directives. Teacher training and engineering are covered by the 'general system', according to which EU member states can map the qualification of incoming professionals against a grid of

Figure 10. Table 7 (Trends VII).

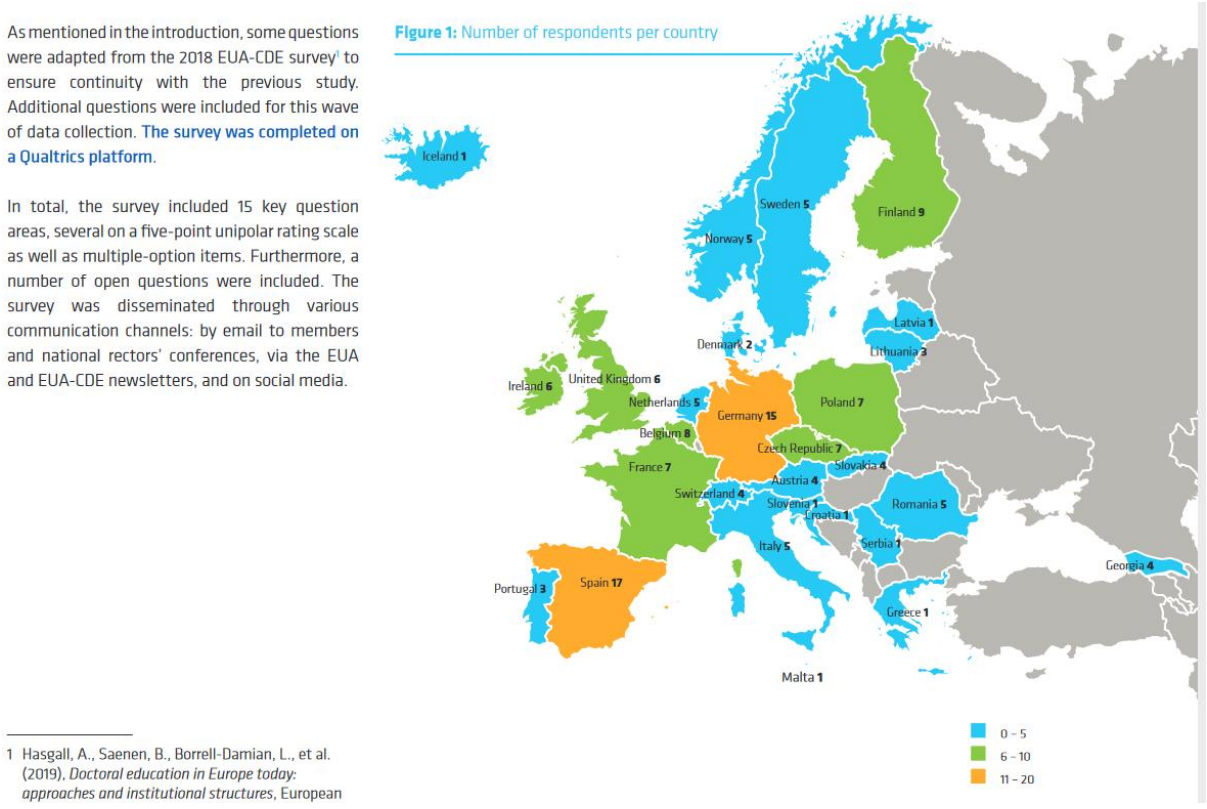
Here the text-flow offers elaboration on how the interpretation for required changes "varies enormously from country to country". The diagram shows no distinction between countries, as it aggregates the figure through substitution. In particular, the diagram encodes temporal information about how the respondents' aggregated agreement with the question increases over time, which is conversely not evident from the text. This suggests that the concentrated and differently focused information contained within the diagram could lead to mistakes in assessing the situation if considered separately from the text. This is in line with Tufte (1997), who points out that the simplifications made in constructing visualizations of data may lead to misunderstandings, or even danger, most famously with the NASA shuttle disaster.

Another feature in the documents that invites possibility for misinterpretation is that diagrams are inconsistently introduced in the text-flow. Occasionally deictic information that refers to the diagram is given two or more pages before it actually appears, expanding the necessary reach of analysis outside of the page as the core unit. This can be contrasted with Bateman (2008, p. 175), where visual elements tend "to be situated 'near' to their referring text or to rely on explicit textual cross-references via document deixis". In this corpus the case is usually that both adjacency and explicit textual references are used to situate the visualizations in the context of the text flow.

While indeed most of the diagrams are either directly referenced or the data within them is discussed, some are placed within the text-flow without any explicit reasoning for their presence. These situations are resolved through context clues (e.g. cohesive chains of text repeated in the text-flow and the diagrammatic mode) that are presumably sufficient for readers to understand the otherwise inexplicable presence of the visualization. This suggests that the link that allows sense to be made of them must be based on grouping. Here, perhaps, further consideration of Gestalt theory could be useful. Even so, Gilchrist (2022, p. 110) states that "the formula by which effects of multiple grouping principles are combined has yet to be specified". We already see several grouping principles at play in the diagrams in this study, and in their situation within the page-flow of the whole document, suggesting that a rigid system of assessing the general operation of grouping would be hard to come by.

Largely concurrently with deletions, the transformation of substitution appears in the data. The two are not entirely interchangeable, as they may target different aspects of the discourse in question. The substitutions are near-universal in the sense that the diagrams are variously used to either aggregate information that is discussed in the text (e.g. bar charts), or conversely to particularize it by presenting it according to divisions such as country or level of institution (e.g. choropleth maps). Substitutions are multimodally interesting from the point of view that they introduce new dimensions of meaning to the information. Even with the simple bar chart the visual encoding it affords provides a substitution in transferring quantitative data into spatial data that acts as a representant of that quantity. As with Van Leeuwen's (2008) original formulation, the discourse remains the same but new aspects (such as the spatial dimension) are introduced.

This can be seen in Figure 11, where several different substitutions take place. The very generalized discourse in-text is recontextualized as particularized, spatially mapped representations of country-specific information. Simultaneously, the members of the national rectors' conferences are generalized to only being numbers in the legend. Previously nominalized entities (or rather their roles) are then removed from consideration and their nationalities are brought into frame through geo-spatial representation. It can also be noted that this choropleth map marks one of the few instances in the corpus where countries on the map are nominalized with their English name. Standard practice in the dataset expects that countries are identified based on their shape and location on the map.



As mentioned in the introduction, some questions were adapted from the 2018 EUA-CDE survey[1] to ensure continuity with the previous study. Additional questions were included for this wave of data collection. The survey was completed on a Qualtrics platform.

In total, the survey included 15 key question areas, several on a five-point unipolar rating scale as well as multiple-option items. Furthermore, a number of open questions were included. The survey was disseminated through various communication channels: by email to members and national rectors' conferences, via the EUA and EUA-CDE newsletters, and on social media.

1 Hasgall, A., Saenen, B., Borrell-Damian, L., et al. (2019), *Doctoral education in Europe today: approaches and institutional structures*, European

Figure 11. Figure 1 (Trends X).

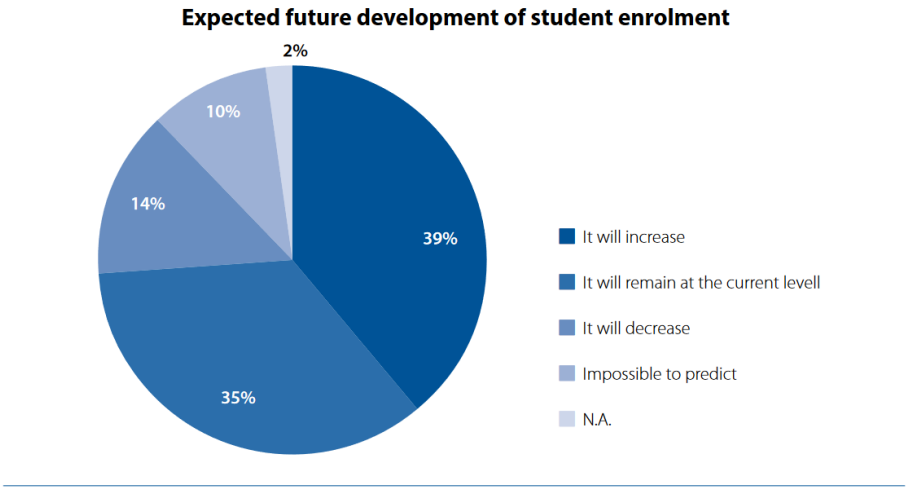
In the corpus of the study the recontextualizing transformation of legitimation appears intermittently. Legitimations here are used, to borrow from rhetoric theory (Atkinson et al., 2008, p. 360), through the rhetorical device of quantity. This is to say that the frequency of appearance is used to reinstate a point. A typical usage of the legitimation transformation is the usage of bar charts as supportive evidence for a claim, such as "the data seems to point to a steady growth" (Table 31, Trends VII).

This allows the reader to take the claim and consider it themselves in light of the data presented in the visualization. This is a common way in which the diagrams are introduced, and generally the text in these cases refers simply to an ‘increase’ or ‘decrease’ in a particular value across the Trend Reports. The claim is trivially observable from the way the data is visualized, and the visualization could presumably be legible in that way even without this textual mention. However, there are several cases where the text makes a claim that is more far-reaching and complex than the previous case, such as the claim that “the geographical targets are changing slightly and reflect the desire to explore new links, beyond the historical and cultural connections that have been maintained, sometimes over centuries” in Table 25 of Trends VII. Here, the claim is based on the data that is visualized, but an interpretation is included in addition to the numerical description. This is where the visualization can be seen as being genuinely used as a way to legitimize the claim, rather than acting as a way to rephrase the same data.

Quite often, the diagrams restate something that has already been provided before in the text, as can be seen in Figure 12. This type of usage is especially common in Trends VIII and IX, suggesting a preference in the newer reports for restating the pertinent information, whether it be of the institution or the author. Here the reader is essentially presented with the same information twice, with the only meaningful difference being the effect the visualization and its parts-of-the-whole readability have on comprehension, as opposed to the more abstract listing of percentages.

When asked "How do you expect enrolment at your institution to develop in the future?" (cf. Figure 12): 39% expect it to increase; 35% assume that it will remain the same; 14% anticipate a decrease; and a relatively significant number (10%) cannot predict.

Figure 12: How do you expect enrolment at your institution to develop in the future? (Q20)



Institutional size and country location seem to affect these responses:

Figure 12. Figure 12 (Trends VIII).

Another common legitimating usage is directing the reader to make their own assessment and agree with the claim being made. The reader is invited to do so through the usage of phrases such as "Comparing the Trends III and Trends V European maps of this situation, it is also clear that --" in Trends V (p. 17, referring to figures 2 and 3 in Trends V). This is a level of legitimation where the analysis is obvious enough that the reader is presumably capable of reaching the same conclusion once presented with the visualization of the data. Contrary to some examples, there is no implication or a leap from the facts presented to an abductive conclusion, but the visualization does provide the reader with the means to assess the claim, unlike in Figure 12 above.

4.4 Multimodal Recontextualization in Practice

In this Section I will describe the process of multimodal recontextualization evident in the data, and continue to describe situations where this process fails to produce the desired results. Based on evidence from the data, multimodal recontextualization appears to operate supported by the layout of the page. It is within the constraints of the page that the text-flow produces a meaningful unit of discourse from which the

diagrammatic visualization can emerge. While the materialities of visualizing graphs and page-based text-flow are different, the process of recontextualization helps to bridge that gap. The visual aspects necessary for the diagrammatic mode never exist in the text itself, so they must be additions within the meaning-making process. The recontextualizing transformations are always one-way, as can be expected from the primacy of text-flow on the page. While the process of recontextualization can be identified in each of the diagrams, its presence does not necessarily mean that the choices made during it are appropriate for the meaning-making process in question.

As an example, one of the more curious choices made in the first two Trend Reports is the visualization of country-specific information by using comparison charts, which are only capable of supporting comparison of the presented data without introducing any particularizing focus. Starting with Trends III the most common way of portraying information by country is the choropleth map, with the associated map legend filling in otherwise missing details. This allows for substituting aggregated information with particularized, country-specific data. Compared to the comparison charts used for portraying country-specific information in Trends I and II, the choropleth maps allow for more fine-grained highlighting of data aspects, especially when considering their spatial affordances in terms of spatial and geographical configurations. The limitations of the choropleth map, however, become apparent when more variables are presented. While a comparison chart may add another line to one of the axes to account for this, choropleth maps may depend on more convoluted solutions, such as seen in Figure 13.

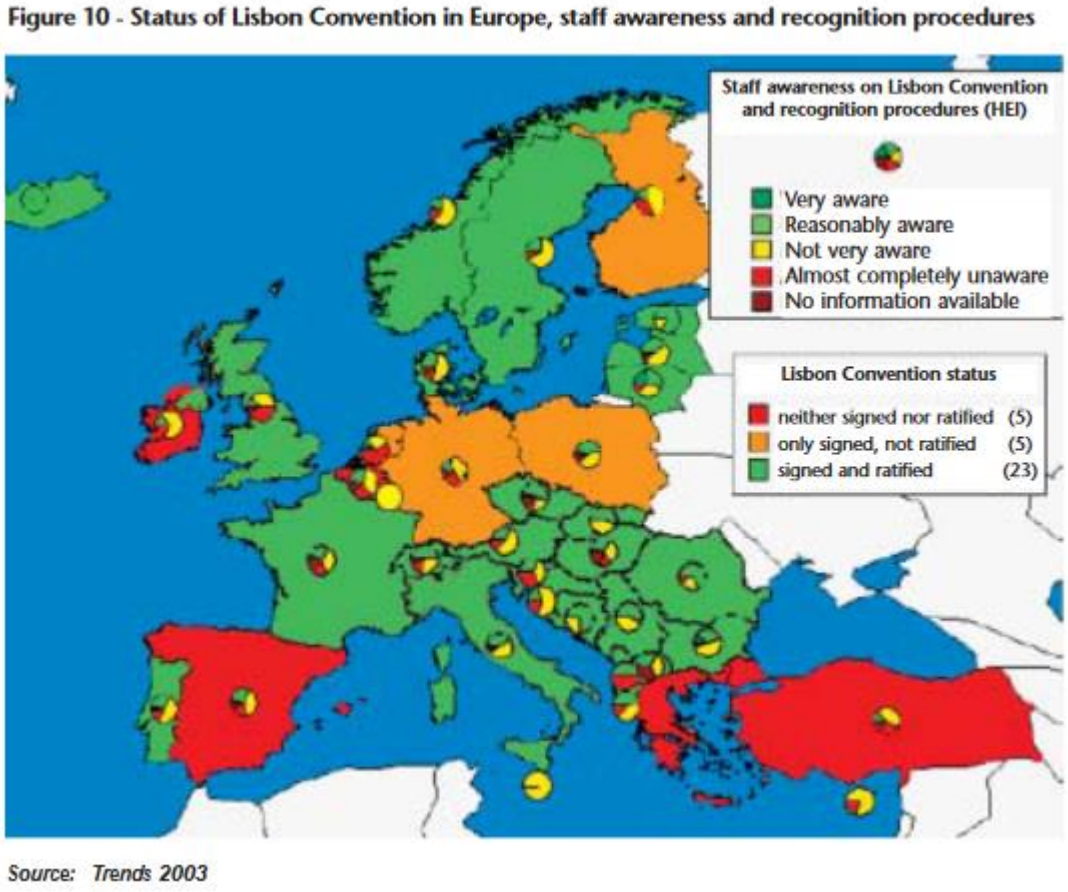


Figure 13. Figure 10 (Trends III).

Figure 13 also provides an example of the issues that emerge when various types of diagrams are combined to create visualizations that aim to provide more information than any single diagram type could. Here the choropleth map is combined with a set of pie charts for each country. While the rest of the corpus suggests that the information each diagram type in the visualization attempts to portray is an appropriate choice in and of itself, the combination of the two introduces readability issues and potential for confusion. In addition to the relatively small size and large number of the pie charts making parts of the diagram illegible, issues may also arise from the combination of the different discourse semantics (Bateman, 2011, p. 21) that each diagram type uses. The discourse semantics provide "guiding schemes of contextual interpretation" (ibid.). Here the combination of diagram types leads the schemes to become muddled and conflicting, and the reader's intuitive grasp of the visualization is weakened.

This confusion can be illustrated through inspecting the visual encodings and transformations taking place in the diagram. The text preceding the visualization

(Trends III, p. 61) presents the Lisbon Convention status of each country by listing countries that "had ratified" it, "have signed but not yet ratified it", or "will ratify in the future". The status is then visually encoded through colour-coded *mapping* on the choropleth map, which recontextualizes it through *substitution*, exchanging nominal information with spatial geographic information. The data appearing in the pie charts is introduced after the reader encounters the diagram, where it is stated that of the Higher Education Institutions (HEI), "only 3% think their academic staff are very aware [--] and 28% reasonably aware. 42.5% are reported to be not very aware and 17% almost completely unaware" (ibid.). This is subsequently elaborated on by country-specific discussion such as "Staff in Lithuanian HEIs seem to be by far the most informed: 22% are reported to be very aware" (ibid.). The data behind these statements is then visually encoded through *proportional partitioning* and *colour-coding* to form country-specific pie charts that are then additionally *mapped* on top of the choropleth map. The aggregated statements are transformed through the *substitution* of *particularization*, where the previously aggregated information grouped by answers is *deleted*.

The issues in readability may arise from the choropleth map needing to be understood before sense can be made out of the pie charts overlaid on top of it, which creates another layer of hierarchy for the diagram. The expectation for documents portraying the results of research of some kind would be a shallow organisation (Hiippala 2016, p. 66). Alternatively, looking at the recontextualizing transformations present, the apparent difficulty of the diagram to be understood can be hypothesized to be due to an issue with the way both the visual encodings and *substitutions* are executed. While providing aggregated data (as was done in-text) and *particularizing* it may serve to highlight specific respondents (Van Leeuwen 2008, p. 17), performing this for 35 entities in the same map while using shared *colour coding* may not be taking full advantage of the semiotic resources afforded by the visualization.

5 Discussion

In this Chapter I will discuss the results of the analysis, and comment on the trends uncovered therein. In Section 5.1. I will consider the results of the study in light of the research questions for the thesis. These will be contrasted with existing research in order to situate the results within the fields of multimodal and recontextualization analysis in Section 5.2. Finally, I will consider the limitations of this study and its implications for further research in Section 5.3.

5.1 Aims of the Study

As stated in Chapter 1, this thesis has attempted to answer two research questions:

- What evidence of recontextualization can be found between textual elements and diagrams in higher education policy documents?
- To what extent can multimodal analysis improve our understanding of recontextualization?

The analysis reveals that the diagrams in the corpus of the study transform the text in which they are embedded in a variety of ways. While the exact configuration varies from diagram to diagram and from one Trend Report to the next, each of the diagrams analysed recontextualizes content encountered in adjacent text-flow in at least some fashion. The data suggests that recontextualization is an inherent part of how diagrams operate, and the framework of recontextualization analysis appears to be capable of grasping the features through which this transformation takes place. On the other hand, gaining a clear understanding of a necessarily multimodal phenomenon like the usage of the diagrammatic mode in the Trend Reports would result in an incomplete analysis without tools to work with the interaction of multiple semiotic modes. We may observe this through Van Leeuwen's (2008, p. 14) concept of a recontextualization chain.

Figure 14 below shows the recontextualization chain for question 12 in Trends VII, regarding the prevalence of the cycle-based degree structures in higher education institutions. The recontextualization chain is recreated based on available textual evidence (the questions, responses, discussion and visualization appear in the Trend Reports) and hypothesized processes and implied conceptualization (e.g. Cycle-based degree structure) that would presumably operate in the production of available

evidence. In Figure 14 the cycle-based degree structure is the concept that acts as the basis for narrowing down the specific inquiry, which is finding out which institutions have a degree structure based on cycles. This question is then formulated and presented to the institutions, where the dotted lines represent a presumed point of recontextualization in the form of an internal discussion to answer the question. While this is not evident from the data itself, it offers the option for a new context for the discourse to be presented in. Regardless, a process of some kind produces the response, which in this case would be a simple yes or no. A number of these responses are presented to the researcher, who then produces the discussion which is present in the Trend Report. The reader can then observe this discussion recontextualized in a visualized form, first in the bar chart (Table 6) and then in a series of choropleth maps, the last of which (Map 4) is the one expected to include data from the same survey that the institution just answered.

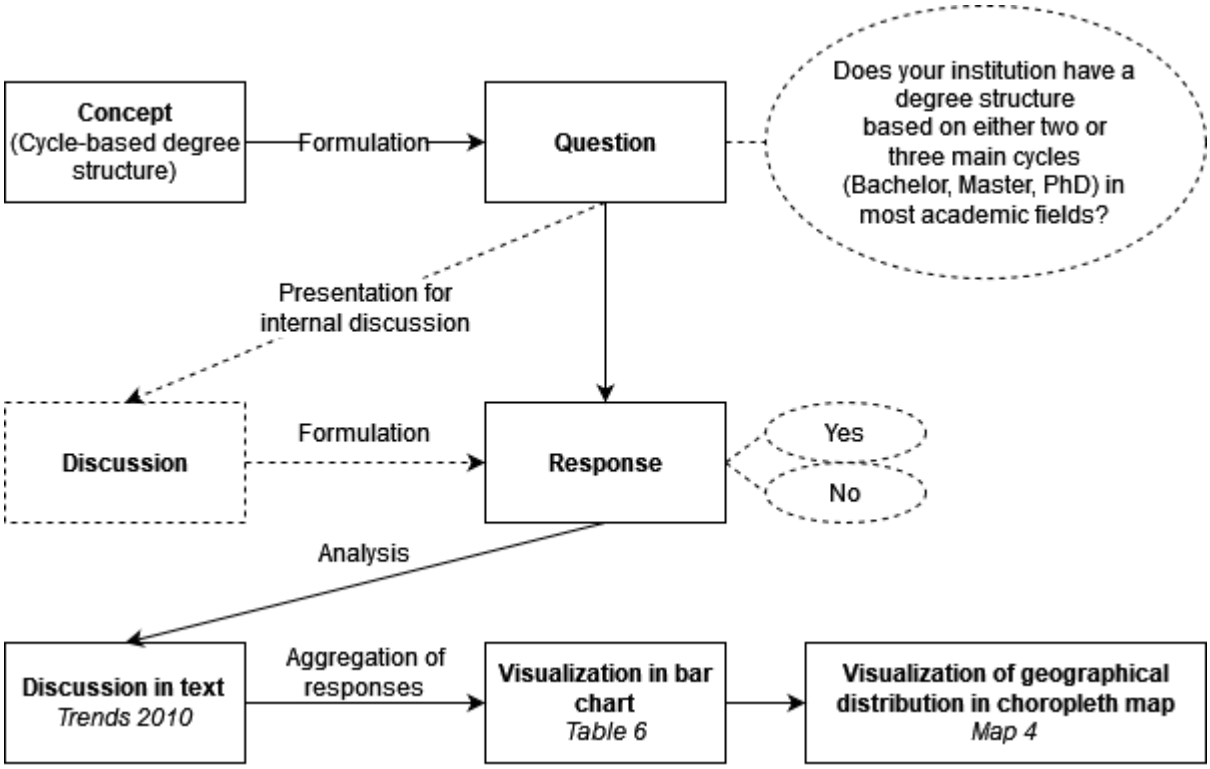


Figure 14. Recontextualization Chain for Trends VII, Table 6 and Map 4.

This recontextualization chain can be used as a generic model to represent the majority of recontextualization processes with in-text evidence in the Trend Reports. While only the 'Discussion in text' and some number of 'Visualization' links in the chain appear in every diagram in the corpus, the rest of the chain is strongly implied

to remain somewhat static. A clear majority of the diagrams in the reports visualize data that has been gathered from participating universities through questionnaires or other comparable means. Most of the diagrams also include the question that has been asked in their title. Some adjustments should be made to the chain when applying it across the reports, with unnecessary features being removed in cases where either fewer visualizations are presented (e.g. no map used to further highlight some aspect of responses) or the specific question is omitted from the Trend Report, as is the case with Trends V.

The presence of the links preceding in-text discussion in the recontextualization chain suggests that a typical process of recontextualization encountered in this study is likely to involve multiple participants instead of just the author(s) of the Trend Report. As seen in Figure 14, at least two distinct roles emerge in the creation of the final product. First, there is the author or group of authors that are responsible for producing the report and its various elements. Secondly, there are the representatives of the universities that respond to the questionnaires on which a large portion of the contents of the reports are based. The latter group's participation in the recontextualizing process is required for the subsequent text-internal multimodal recontextualization, as they are the party providing the data that becomes recontextualized through visualizations. A complete analysis of the entire chain of recontextualization that culminates with the Trend Reports would then require access to both the questionnaires (occasionally included as appendices in the reports), and to the discussions and presentations presumably taking place within the EUA and the universities to formulate the questions and produce answers to them, respectively. Extending the scope of research to the entire process behind the creation of these Trend Reports could then introduce the need to analyse new semiotic modes such as speech or gesture, and new genres such as slideshow presentations or institutional emails, all of which may be presumed to be communicational tools available to those participating in the process.

Considering Bateman's (2021, p. 41) definitions of materiality and the canvas, we see that the materiality of the page-based Trend Report documents is temporally static, spatially two-dimensional, consisting of permanent inscriptions that are observed by sight. Here the transience of the reports is arguable, as Bateman (ibid., p. 54) notes that computer-supported media exhibit a type of generalized transcience,

“where the ‘permanence’ or not of traces can be arbitrarily varied”. Regardless, were analysis extended to the presumed processes noted above, the materialities present would also incorporate the role of participant, as well as more dynamic temporality and even fleeting transience. Including these features in the expanded analysis would ground the recontextualization analysis to an extent not present in Van Leeuwen (2008, pp. 102-104), and inform the study on the choices and limitations presented to those participating in the process that produces the Trend Reports. This suggests that a full understanding of how recontextualization takes place in the data would require an even more diverse set of tools for multimodal analysis, leading to the conclusion that recontextualization analysis for these and similar documents should be paired with a multimodal approach for optimal results.

5.2 Relevance of the Study

The results of the study corroborate the initial hypothesis that text-flow will be the primary semiotic mode in play, with recontextualization through visualization operating as a supporting feature. This echoes earlier findings on the nature of research monographs (Hiippala, 2016), which use the “one-dimensional linear structure of text-flow” (ibid., p. 65) to aid visual perception and interpretation. Similarly, the Trend Reports appear to take advantage of the simple layout and consistent text-flow (Figure 15) in order to provide a logical framework for presenting data discovered through questionnaires to universities.

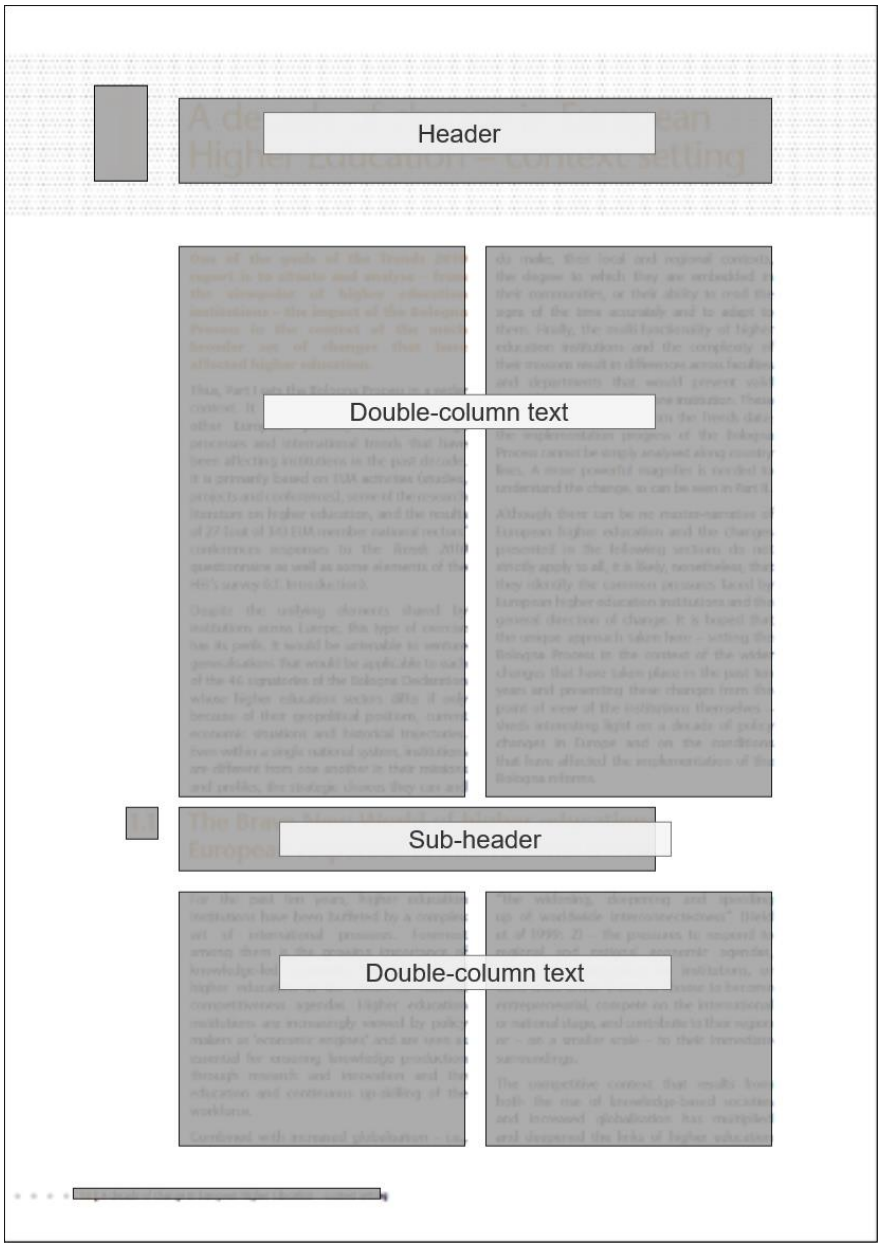


Figure 15. Text-flow of Trends VII.

While the reports are not themselves research monographs, they also share the goal of disseminating knowledge, although in their case the target audience is not the scientific community. This can be seen from the very beginning, as providing “input to the Bologna meeting of ministers/governments and higher education representatives” (Trends I, p. 5) is given as the purpose for writing the first report. This suggests that removing obstacles to understanding in presenting the information to said ministers would be a prudent course of action.

The notion of conventions providing ease of access can be contrasted to Van Leeuwen's (2011, p. 168) statement that “in multimodal texts any semiotic mode can

in principle either provide the basic structure or remain incidental, fragmented, providing, here and there, some added colour". This principle appears to not be the case for the corpus analysed in this study. Text-flow is consistently the primary mode of communication, only being accented by diagrammatic visualizations that either reinforce a statement made or highlight variation between Trend Reports. While this can be explained by genre conventions and the functionality this approach provides, a different method of portraying the data contained in the reports might be equally viable.

The Trend Reports already reflect a clear move towards visual presentation from the first publication in 1999 to the latest in 2022, occasionally experimenting with different types of diagrams (see Figure 13), varying layout (contrast Trends I and Trends X) and division of discursive matter. As Bateman (2008, p. 175) states, "[n]ewer documents tend to make more varied use of the spatial possibilities available to them", suggesting a general increase in visuality also observable in this study. If this trend towards visual expression is hypothesized to continue, a future Trend Report where text-flow is not the primary semiotic mode is not out of the question. Although presently unlikely, such a report would challenge the way in which recontextualization is operationalized in this thesis. Here, the direction of recontextualization taking place from text to its visualization seems readily apparent and uncontested, but in a context where visual elements assume primacy over the textual the applicability of the framework as is becomes unclear.

Regardless of the utility the approach used in this thesis might provide in an overwhelmingly visual scenario, it appears that the study of diagrams would be incomplete without giving consideration to the way in which their content relates to the context they are placed in. The relationship between diagrams and the text-flow they are nested is observed here to be inherently self-referential. This would presumably be different in the case of other modes. This is to say that for instance the layout or graphic elements present in the Trend Reports appear to be completely incidental, changing with each instance and having little to no bearing on the reports themselves. Exchanging the graphic elements of Trend Reports with those of another would not in any meaningful way change the report. However, the content of the diagrams is deeply linked to the content of the text-flow surrounding them, and uncoupling one from the other would prevent them from producing meaning coherently. This suggests that the mechanism with which the two are connected is

integral to a full understanding of diagrams, and it is here that the analysis of multimodal recontextualization may prove applicable.

The approach used in this thesis could be applied to other types of documents and different contexts in which visualizations of data appear. This dataset and presumably others largely based on surveyed information reiterate a good deal of what they concern through the diagrams. While this enforces the applicability of the *substitution* and *deletion* transformations, other situations where diagrams present novel data might yield more interesting results and types of transformations unseen in the current dataset. This could even be extended to include contexts where diagrammatic elements are presented without being featured in diagrams per se. These include, for instance, direction arrows (Alikhani and Stone, 2018, p. 3556), which can "show the direction of traffic in street signs". Applying the currently used framework (with necessary modifications) to explain the way in which spatial information and other contextually relevant data are transformed into the street sign through diagrammatic elements would truly make this a multimodal analytical tool.

5.3 Limitations of the Study

This study has focused on the analysis of textual artefacts to make sense of their operation, without particular concentration on who has produced those artefacts. This neglects the 'social' aspect of social semiotics, on which the framework of recontextualization is based (as seen in Chapter 2). While the practice of producing reports and using visualizations within them is at the core of how recontextualization takes place in the corpus of this study, little attention has been given to those who participate in their production. Shipka (2010, p. 54) explores the limitations of considering textual (or semiotic) artefacts in the absence of the activities in which they are situated. Failing to consider that "texts [--] have a history and are connected to, and informed by, other processes and systems of activity" (ibid.) may lead to missed opportunities in understanding what function they have. A fuller understanding could be achieved by expanding the scope of the study to include a deeper probe into the context behind the publication of the EUA Trend Reports. Locating the authors and the timeline of publication within the context of the EUA and the EHEA could provide an increased understanding of what particular choices made within the reports may have been expected to achieve. While this thesis has already combined two approaches to better understand what happens in diagrams in

the context of their appearance, further forays could be made to other nearby fields. Further study would benefit from a deeper understanding of visualization design and the way in which visualizations of statistics are pragmatically created. This would include drawing from further diverse fields such as information design, cognitive science and cartography, where some of the issues have already been considered.

As such, the framework of recontextualization used in this study offers tools to identify instances in which a transfer in context appears to have triggered transformations necessitated by any relevant differences between the two contexts, be it a different instance of discourse or an entirely different mode altogether. However, what the framework does not offer is a way to satisfyingly explain why this change is triggered, and therefore it fails to satisfyingly provide predictive generalizability. This becomes a particular issue when multimodal phenomena are present. As Bateman (2011, p. 18) notes, “the vast majority of multimodal ‘analyses’ still go little beyond detailed description”. Here Bateman echoes Forceville's (2007, p. 1236) sentiment that such descriptions “seldom result in non-trivial explanations why the texts convey what they supposedly do convey”. Forceville (ibid.) continues by stating that textual analyses “must be complemented by top-down conceptualisations to avoid infinite detail”. While Bateman’s conceptualization of the three semiotic strata offers a strong top-down frame of understanding multimodal phenomena, it is unclear how this thesis succeeds in maintaining the integrity of the overall theoretical framework. This is to say that adding the consideration of recontextualization to a framework of multimodal analysis or vice versa requires care to be had in ensuring both parts of the whole remain sufficiently strong.

6 Conclusion

This thesis has consisted of an attempt to combine a multimodal approach with recontextualization analysis of the contents of 10 Trend Report documents from the European University Association. The analysis shows the emergence of particular trends within the materials: On the one hand, trend reports are getting more visual with time and the variety of the visualizations is also on an upward trajectory. On the other hand, the recontextualizations taking place between the textual and diagrammatic elements within the documents remain largely consistent and static, and the appearance of both new types of diagrams and novel forms of recontextualization appears to be limited.

Three main uses for visualizations in the Trend Reports have been identified, and they are formed through various multimodal transformations of the data. The most common purpose for the diagrams is summarization, where the visualization provides a concise presentation of data that is discussed in-text. The second use for diagrams is legitimating reinstatement, or providing the reader with a visualization for the purpose of supporting a claim made in the preceding text. The third use of diagrams is the temporal comparison of data, typically comparing data from different Trend Reports in one diagram or a series thereof.

In this study I have seeked to find a synthesis between two research approaches that are uncommonly used together. Recontextualization analysis and the multimodal analysis of diagrammatic features appear to be mutually supportive and particularly from the perspective of recontextualization this approach may prove beneficial for a fuller understanding of the phenomena present in the dataset. The results of this study support the hypothesis that this combination may present a fruitful avenue of research, which may yield novel results if developed into a more rigorous direction.

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Appendices

Appendix 1. Trends I

Trends in Learning Structures in Higher Education
07 June 1999 | Report
Guy Haug and Jette Kirstein
Download link:
https://eua.eu/downloads/publications/trends%20i%20trends%20in%20learning%20structures%20in%20higher%20education.pdf

Appendix 2. Trends II

Trends II - Towards the European higher education area : survey of main reforms from Bologna to Prague
15 February 2002 | Report
Guy Haug and Christian Tauch
Download link:
https://eua.eu/downloads/publications/trends%20ii%20towards%20the%20european%20higher%20education%20area%20%20survey%20of%20main%20reforms%20from%20bologna%20to%20pragu.pdf

Appendix 3. Trends III

Trends 2003: Progress towards the European Higher Education Area
18 August 2003 | Report
Sybille Reichert and Christian Tauch
Download link:
https://eua.eu/downloads/publications/trends%20iii%20progress%20towards%20the%20european%20higher%20education%20area.pdf

Appendix 4. Trends IV

Trends IV: European Universities Implementing Bologna
20 May 2005 | Report
Sybille Reichert and Christian Tauch
Download link:

https://eua.eu/downloads/publications/trends%20iv%20european%20universities%20implementing%20bologna.pdf

Appendix 5. Trends V

Trends V: Universities shaping the European Higher Education Area
14 June 2007 | Report
David Crosier, Lewis Purser and Hanne Smidt
ISBN : 9789078997023
Download link:
https://eua.eu/downloads/publications/trends%20v%20universities%20shaping%20the%20european%20higher%20education%20area.pdf

Appendix 6. Trends VI

Trends In Quality Assurance
20 March 2009 | EQAF Paper
ISBN : 9789078997092
Download link:
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Appendix 7. Trends VII

Trends 2010: A decade of change in European Higher Education
03 March 2010 | Report
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Appendix 8. Trends VIII

Trends 2015: Learning and Teaching in European Universities
04 May 2015 | Report
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Download link:

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Appendix 9. Trends IX

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11 October 2018 | Report
Michael Gaebel and Thérèse Zhang
ISBN : 9789078997658
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Appendix 10. Trends X

Doctoral education in Europe: current developments and trends
05 April 2022 | Report
Alexander Hasgall and Ana-Maria Peneoasu
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