
Catching the wave of video teaching

*Supporting lecturers in the tourism team Inholland Diemen
in developing video teaching skills*



Zac Woolfitt

Student number 522569
Masteropleiding Leren en Innoveren
Course Maatwerk bij innovatie en verbetertrajecten
Inholland, Semester 4 (2013 - 2014)

Image front and back cover 'Digital Wave' adapted from *The Great Wave off Kanagawa*, Katsushika Hokusai.
Photography and design by the author

Catching the wave of video teaching

*Supporting lecturers in the tourism team Inholland Diemen
in developing video teaching skills*

Research into the transition for lecturers moving from teaching face-to-face,
to teaching via video, developing the skill of video teaching

Zac Woolfitt

Master Thesis

Report of practical based research, conducted in the context
of obtaining the title Master of Education

Supervisor: Pieter Swager
July 2014

Master Leren & Innoveren



Hogeschool Inholland
Domain Marketing, Toerisme en Vrijetijdsmanagement

Summary

The ‘wave’ of technology breaking over Higher Education continues to impact the interaction between lecturers and students. The increasing prevalence of video and the ease of its distribution offer lecturers the opportunity to use the medium of video to enhance their teaching in a variety of ways with many different functions. Transitioning from face-to-face teaching into ‘video teaching’ requires an active decision from lecturers to ‘catch the wave’ and there is a need for adequate support since teaching into camera requires rethinking the traditional didactic process. This research report was conducted for the lecturers of the tourism team at Inholland University of Applied Sciences, located in Diemen in The Netherlands. The group of lecturers teach on a four year HBO Tourism Management course. The pressures of ever-changing technology, the internal expectations of each new group of first-year students and the ongoing organisational developments create a dynamic and challenging working environment. Within this context, the research explores the opportunities for lecturers and students to benefit from technology by using video as a medium to complement current teaching practice. Most of the team have little or no experience of video teaching but are interested in trying this approach. To understand the specific needs of the lecturers in this context, a detailed analysis was made of their thoughts regarding video teaching and the kind of help they need to develop their video teaching skills and take advantage of the possibilities.

The context for the research was outlined through a review of literature that examines the impact of video use within Higher Education. Educational theories and approaches that support the formulation of the research questions and the nature and functions of video teaching are defined. The research follows the design research approach which establishes a set of criteria to build a prototype, which is then evaluated as part of an iterative research cycle. The main research question examines the characteristics of support needed by the tourism team to develop their video teaching skills. The specific methodology for each of the research instruments is explained along with why the specific methods have been used. A questionnaire was used to establish the current level of experience of video teaching within the team. In addition, 23 interviews (including a focus group, group interview and semi-structured interviews) were held with stakeholders including a member of the Inholland board of directors, the team manager, video teaching experts and with most of the tourism team lecturers.

Lecturers on the tourism team are already using aspects of video in their teaching but have minimal experience appearing as a teacher in video format. They want to know more about the benefits this can bring them and their students. Lecturers identified areas throughout the tourism curriculum where video teaching could be used. Questions were expressed about how to get started and how teaching via video might threaten the traditional relationship between lecturer and the student. These questions and concerns present a stumbling block for lecturers to take the first steps into video teaching to create an onscreen teaching presence. Lecturers indicated a desire to be supported in this process through a small-scale interactive workshop with peers, augmented by a series of short training web lectures watched in advance as preparation. The data collected resulted in a set of criteria used to design and build the first prototype. Experts and selected stakeholders screened the criteria and prototype for expected practicality and effectiveness. This resulted in an updated set of criteria and a second prototype based on three interactive workshops, which is presented in the results. The conclusion relates the research findings to the literature and draws parallels with previous research. Practical steps are recommended to develop and implement the first video teaching training course including a suggested timescale. A second phase outlines making the video teaching training course available to a wider group of lecturers inside and outside Inholland.

Foreword

This master thesis could not have been possible without the help and support of friends, family and teaching staff and fellow students.

First and foremost, my heartfelt thanks to my amazing and wonderful wife Anne, who has supported me 100% throughout the intensive two-year period of the studies. She has given me time, space, love and understanding. Without your help Anne, it would not have been possible. To my children Florence and Flint for their love. Thank you to my brother Tobias for his invaluable input and scrutiny in reading the final draft. Thank you also to Bart Peters of www.allplaces.nl for suggestions and help with final formatting and layout.

Thank you to the teaching staff and coordinator of the Master Leren en Innoveren. To Pieter Swager for his expert guidance, feedback and amazing commitment during my research. To Eja Kliphuis for her motivation, support and practical feedback. To Jos Fransen for his inspiration. To Gitte Buitelaar for her support and encouragement from the very beginning. To my coach Leontine van Schie for helping me to reflect. Thank you to Richard Kragten (Mr. Quantitative) and fellow web lecture researcher, for his support and insights throughout. And to all the teaching staff and fellow students on the course who have contributed to my learning in this process.

Thank you to my manager at Inholland, Carmencita Manurung-Boekhoudt, for her support for the research subject, and providing access to the tourism team. To my Inholland colleagues who have been interviewed and contributed to the research. To Tom Visscher for his encouragement, ideas and help in showing me how to make web lectures and in setting up the Moodle environment in which the prototype is being built. To the Inholland Board of Directors for granting time to be interviewed for the research.

Thank you to the Dutch Government and ministry of education for facilitating the professionalisation of teaching staff in Higher Education by structurally funding and supporting these studies and making it possible.

The last two years have been a fantastic learning experience and my knowledge, expertise and professionalism have all been ‘supercharged’ by following this Masters in Education Innovation. It has been well and truly worth it. I have received support and input from many sides, for which I am enormously grateful.

I hope you enjoy reading the research.

Zac Woolfitt
Hilversum, July 16th, 2014

Contents

List of Tables.....	12
List of Figures.....	14
List of abbreviations	15
1 Introduction.....	17
1.1 Reason for this research	17
1.2 Context of the Research.....	18
1.3 Goal of the research.....	19
1.4 Limiting the scope of the research	19
1.5 Stakeholders	20
1.6 Relevance of the research	21
1.7 Research questions	22
1.8 Reading Guide	23
2 Theoretical Framework	25
2.1 Introduction	25
2.2 Educational theories and models	26
2.3 Context of video in education.....	30
2.4 The qualities of video teaching	36
2.4.1 Types of video teaching	36
2.4.2 Impact of video on teaching	43
2.4.3 Answer to sub question 1 - The qualities of video teaching.....	44
2.5 The functions of video teaching.....	47
2.5.1 Overview	47
2.5.2 Answer to sub question 2 - The functions of video teaching	50
2.6 Formats for supporting video teaching	50
2.7 Summary of chapter 2.....	54
3 Methodology.....	56
3.1 Introduction	56
3.2 Design Research	56
3.3 Research questions and research instruments.....	57
3.3.1 Main research question and sub questions.....	57
3.3.2 Literature review.....	59
3.3.3 Questionnaire	59
3.3.4 Inventory.....	60
3.3.5 Focus Group	61
3.3.6 Group interview	62
3.3.7 Semi-structured in-depth interviews.....	63
3.3.8 Brainstorming cards	63

3.3.9	Compilation of criteria and instructional design of prototype	64
3.3.10	Screening.....	66
3.3.11	Expert appraisal	66
3.4	Qualitative data analysis.....	66
3.5	Ethical considerations.....	67
3.6	Summary of chapter 3.....	69
4	Results	71
4.1	Introduction	71
4.2	Results of literature review.....	71
4.3	Results of the questionnaire	71
4.4	Inventory of video teaching made by the tourism team	77
4.5	Results of focus group and interviews.....	78
4.6	Development specifications for prototype 1	86
4.7	Results of screening for expected practicality	87
4.8	Results of expert appraisal for expected effectiveness of the prototype	88
4.9	Prototype 2	90
4.9.1	Video teaching training course	90
4.9.2	Series of supporting micro web lectures	93
4.10	Summary of chapter 4.....	95
5	Conclusions & discussion	97
5.1	Introduction	97
5.2	Answer to the research questions and discussion.....	97
5.3	Recommendations	102
5.4	Critical Reflection	103
5.5	Further Research.....	107
	Afterword	Error! Bookmark not defined.
	Bibliography.....	111
	Appendix.....	123
	Appendix A Questionnaire	123
	Appendix B Invitation to group interview	126
	Appendix C Group interview protocol.....	127
	Appendix D Reminder email for questionnaire completion	131
	Appendix E Selection of databases searched for video teaching.....	132
	Appendix F Questions for tourism Curriculum Committee.....	133
	Appendix G Summary of interview with Inholland board member	134
	Appendix H Example of transcribed and coded interview	135
	Appendix I Independent coding check	136
	Appendix J Draft themes, categories, codes and dimensions.....	137
	Appendix K Sample word cloud.....	139

Appendix L Interview schedule	140
Appendix M IBL designer.....	141
Appendix N Curriculum spider web	143
Appendix O Development specifications for prototype 1.....	144
Appendix P Development specifications for prototype 2	145

List of Tables

Table 1 Stakeholder matrix based on Thijs & Van den Akker (2009)	20
Table 2 Qualities of video teaching vs. traditional lecture	46
Table 3 Different functions of video teaching vs. traditional lecture	49
Table 4 Formats for video teaching support.....	50
Table 5 Table for selecting formative evaluation methods(Nieveen in Van den Akker et al., 2010)	57
Table 6 Overview of research questions, methodology and stakeholders	58
Table 7 Video use to support teaching in the tourism team.....	71
Table 8 Q1: <i>Have you used video (e.g. viewing a YouTube video clip in class, referring students to a video link, recording you or your students during the class) during the last 12 months?</i>	73
Table 9 Q2: <i>In the last 12 months, approximately how many times have you shown a video clip to your students in class (e.g. from You Tube, news clip?)</i>	73
Table 10 Q3: <i>In the last 12 months, how often have you included a link to a video clip in your class material (e.g., pasting a link to a You Tube video clip into your Power Point)?....</i>	73
Table 11 Q4: <i>In the last 12 months, how frequently have you referred students to a pre-recorded web lecture of another lecturer (e.g. "Research Techniques" on Inholland Mediasite)?</i>	73
Table 12 Q5: <i>Using video to record your lesson when students are in the classroom, is referred to as 'Live Lecture Capture'. In the last 12 months, how many times have you recorded one of your lessons with video?</i>	74
Table 13 Q6: <i>A 'web lecture' is a pre-recorded lecture made in a studio showing the lecturer, his or her Power Point slides with commentary, made available on a server (e.g. Inholland's Mediasite). In the last 12 months, how many times have you been recorded in a web lecture.....</i>	74
Table 14 Q7: <i>A 'Screencast' is a digital movie in which the setting is partly or wholly a computer screen, and in which audio/video narration describes the on-screen action. How many Screencasts have you made in the last 12 months?</i>	74
Table 15 Q8: <i>A 'webinar' is an interactive, live-streamed video discussion, in which participants can interact with the presenters via an on-line chat option. In the last 12 months, how many times have you participated in a Webinar?</i>	74
Table 16 Q9: <i>Please specify any other ways (not mentioned above) that you have used video in your teaching?.....</i>	75
Table 17 Q10: <i>Which of the descriptions below best describes your level of proficiency in using video as part of your teaching process?</i>	75
Table 18 Q11: <i>Have you ever had any training on using video in your teaching process (e.g., followed a course or workshop, on-line training programme)?</i>	75

Table 19 Q12: Are you interested in learning more about using video in your teaching?	75
Table 20 Q13: Would you be interested in taking part in a focus group to discuss video in your teaching?.....	76
Table 21 Q15: your age in years	76
Table 22 Q16: Number of years teaching	76
Table 23 Q17: Years teaching at Inholland.....	76
Table 24 Web lectures recorded by the tourism team as of April, 2014	77
Table 25 Overview of support preference from teaching team	78
Table 26 Proposed development and training course schedule	103

List of Figures

Figure 1 <i>TPACK - Technological, Pedagogical and Content Knowledge (Harris, Mishra, & Koehler, 2009)</i>	28
Figure 2 <i>General timeline for video technology in the classroom (adapted from Greenberg & Zanetis, 2012)</i>	31
Figure 3 <i>REC:all model (www.weblectures.nl)</i>	36
Figure 4 <i>Technology complexity vs. teacher video presence (Woolfitt, 2014)</i>	38
Figure 5 <i>Sample Screencast, Adobe Photoshop demonstration</i>	41
Figure 6 <i>Screen shot of sample web lecture</i>	42
Figure 7 <i>March 2014 group interview location, Inholland Diemen</i>	62
Figure 8 <i>Example of arrangement of the cards for preferred support (participant U)</i>	64

List of abbreviations

- CuCo Curriculum Committee (tourism team)
HBO Hoger Beroeps Onderwijs (Higher Professional Education)
HTRO Hoger Toeristische Recreatie Onderwijs (Higher tourism and recreation education)
IBL Interactive Blended Learning designer
MOOC Massive Open Online Course
SOLO Structure of Observed Learning Outcome
TM Tourism Management (English stream variant of HTRO)

1 Introduction

1.1 Reason for this research

The impact of video on teaching

There is a rapid and significant increase in the use of teaching through video in Higher Education (Bichsel, 2013; Johnson, Adams Becker, Estrada, & Freeman, 2014; Panopto, 2014; Sonicfoundry, 2013; van den Brink et al., 2014). Recent research into the impact of video in Higher Education has examined the didactic effectiveness of 'video teaching' and the impact on student lecture attendance (Filius & Lam, 2010), student use of recorded lectures (Gorissen, Bruggen, & Jochems, 2012), the different viewing behaviour of students (De Boer, 2013), possible cost savings and improved study results (Martyn, 2009), the teacher experience of making web lectures (Preston et al., 2010), best practices for recording lectures (Day, 2008) and effectiveness, teaching methods, design and reflection of video based learning (Yousef, Chatti, & Schroeder, 2014). The research examines how the increased use of video as a teaching tool, combined with the lower costs and potential benefits is putting pressure on educational organisations to introduce this technology into the classroom which in turn places pressure on lecturers to develop this teaching skill.

There are many questions that this discussion raises. How can video use be integrated into the teaching process successfully at a didactic level? What knowledge and skills do lecturers¹ need in order to make a studio recorded web lecture, a screencast made on their home computer, or to succeed in capturing a live lecture with students? What sort of video use, with what sort of learning goals, is appropriate and most effective at which point of the teaching process? In what format should training, support and instruction in the successful use of video implementation be provided to lecturers? An overview of the current usage of video in education is given below in the theoretical framework, chapter 2.

With the ongoing developments in Higher Education, clarity and direction are needed to guide lecturers through the turbulent and fluid learning context. The increasing use of video within education has already been experienced by some lecturers but there are still some who are not yet participating in these changes within Higher Education (Schwartz, 2013).

Video Teaching

This research focuses on teaching via video as a form of E-learning. Video teaching is defined here as teaching via video in which the teacher plays an active role, is visible and audible, is recorded, and where the screen presence of the teacher plays an important element in the didactic process. This research refers to this format as 'video teaching'. Traditionally, teaching has been based on face to face contact between the teacher and students in a classroom setting and teachers have been trained to teach within this context. However, once the relationship is transposed from face to face contact, to contact via a digital medium, a whole new set of teaching skills and didactic approaches are called upon. This fundamentally challenges the

¹ The term lecturer has been used to describe the role of teachers in Higher Education. Where the term teacher is used, this is used as a general term for all teachers, in any context (not just that of Higher Education). The act of lecturing and teaching is referred to as teaching.

traditional and established role of the lecturer and many of today's lecturers, who completed their training ten or twenty years ago, did not receive training on video teaching (Johnson et al., 2014). It is exactly this challenge that will be explored in this piece of research, by examining different types of video teaching and what lecturers need in order to develop video teaching skills. Three types of video teaching are identified in which the teacher plays an active role; web lectures, screencasts and live lecture capture. The specific definition and difference between these formats is explained in Chapter 2.

1.2 Context of the Research

Inholland is a University of Applied Sciences located in The Netherlands. It provides four-year bachelor courses for higher professional education (Hoger Beroeps Onderwijs: HBO). Inholland has recently experienced several turbulent years, but the organisation has now reached certain strategic goals. As of January 2014, the board of directors predicted a positive year ahead which was an opportune moment to conduct this research. This research report examines the specific needs of a team of Inholland lecturers in developing their 'video teaching' skills and the developing of a prototype to support the lecturers in the team.

Tourism Team Diemen

This research was conducted within the Hoger Toeristisch en Recreatief Onderwijs (HTRO) team, located in Diemen/Amsterdam. The team is referred to hereafter as the tourism team. The tourism team has a team leader and is part of the Leisure Cluster in the faculty of the domain Leisure, Marketing and Tourism. As of February 2014 the tourism team was composed of 25 staff; a team leader, the current researcher and 23 lecturers. During the course of the research 2 lecturers left the team so the team size dropped to 23. The lecturers have a combination of academic and teaching backgrounds, and experience in the tourism industry. The majority of lecturers have been teaching in Higher Education for several years and after the recent reorganisations, relative stability had been reached in the team. Lecturers are contracted to work between three to five days a week. In September 2012, the tourism course was accredited by the Dutch Government for an additional six years which ensures a degree of stability for the upcoming period. In October 2013 the team began a group coaching process 'PitStop' with a focus on team building and managing from within the team.

Support is needed in making first video lectures

In October 2010 some staff on the tourism team were asked to make some short video introduction films to provide information for students about individual courses. In these recorded video presentations, the lecturer explained the course content with PowerPoint slides that were also shown on the screen and were made available via the internal Inholland video platform. It was clear that while certain lecturers were comfortable in front of the camera, there were several other lecturers who were not comfortable and indicated that they felt they needed support and training in order to fulfil this task adequately. This was their first experience of being on camera in this context and it was not straight forward for every lecturer to jump confidently into this new teaching format.

Since 2010, a limited number of the tourism team have taken the opportunity to make additional web lectures and to use video by recording lecture content, their teaching activities, or pre-recording lecture content. There is general interest within the team regarding this topic, but there is uncertainty and lack of clarity regarding the steps needed to move forward which may be why many lecturers have not yet taken the opportunity to explore this teaching format further. As video technology has become more prevalent, extra interest has been generated within the tourism team regarding what possibilities this technology may offer to support and

enhance their teaching. Lecturers in other teams within Inholland are using video recordings of their teaching for their students which generates more curiosity and interest in the tourism team. In the academic year 2014-2015, a complete tourism curriculum review will begin which gives an opportunity to examine the manner in which technology could be used to support the course goals. As technology continues to offer new opportunities, the current curriculum and traditional format of the teaching in the course may no longer be meeting all of the expectations of the students. This has been discussed in recent student panel meetings and in student course evaluations. There is also a gap between the technological literacy of students and some lecturers. Within the team, there appears to be a need to close the digital gap between lecturers and students, (Johnson et al., 2014) and supporting the developing of video teaching skills can contribute to addressing this need.

1.3 Goal of the research

The goal of this research is to gain insight into the support needs of lecturers in the tourism team in order to construct an adequate form of support that will help them develop their video teaching skills. A list of development criteria will be established, based on the lecturer needs, interests, preferences, concerns and level of technology use. The result of the research is a set of design criteria for practical support materials that will help the tourism team develop video teaching skills. These criteria will lead to the construction of a prototype to support this specific group of lecturers to develop their video teaching skills. The goal is to pay specific attention to practical and technical guidelines for video teaching which is placed within a theoretical and conceptual framework of the didactic possibilities available to the lecturer and its impact on their in-classroom activities.

This research does not propose that video teaching must be implemented by all lecturers. However, it does aim to shed light on the subject by providing practical and accessible support to the tourism team in understanding the current developments in video usage and the possibilities available. If relevant to their own situation, it may lead to a more structured approach regarding the lecturer's planned implementation of video teaching, enabling them to become more confident in developing their video teaching skills and applying it within their teaching practice.

1.4 Limiting the scope of the research

The potential of researching video teaching within the team was discussed as a possible subject of research during a core team meeting and in discussions with the team manager. It was decided that the research would focus on the tourism team Diemen. As a member of the tourism team, the researcher had good access to team members, to the web lecture department, to the technical staff recording the lectures and to other experts of the organisation, and to a member of the Inholland board of directors.

Due to the extremely busy schedules of the teaching staff, it was decided to focus on the team that the researcher had direct contact with every day. It was not considered possible (due to time and distance), to collect data from staff on other teams, or at other locations so the main research group was limited to the tourism team. Additional experts with relevant insight were also involved as outlined in the stakeholder overview. There was positive interest from within the tourism team for the research. There was also strong support from the team leader, didactic

experts and the Inholland Lectureship eLearning². However, at an early stage the decision was made not to examine student perspectives of video teaching because the research would focus from the teacher's perspective of learning a new teaching skill.

Video teaching is a large subject and it was necessary to limit the research area and focus on a specific type of video teaching. The team had some experience and familiarity with certain types of video teaching, which made it appropriate to focus the research on these forms, which are outlined below. To achieve the research goal a choice was made to employ the design research approach which follows a cycle of establishing design specifications, building a prototype and then testing and adjusting the subsequent prototypes based on certain quality criteria. The design research approach is explained in more detail in chapter 3. Because of the amount of data collected during the specifications phase, this greatly limited the time available to develop the prototype in detail. Therefore this research report is heavily weighted towards the first part of the design research cycle, identifying and prioritising the lecturer needs (Robson, 2011). The first prototype was designed and went through the first cycle of evaluation. In some research reports the prototype may be developed in much more detail, but in the case of the current research that was not possible due to time limitations. The prototype outlined in this report will be explored in future research that develops and tests the partial, complete and implemented intervention stages in much greater detail.

1.5 Stakeholders

Table 1 *Stakeholder matrix based on Thijss & Van den Akker (2009)*

Level	Description	Role
Supra	(International) Interest groups	(International) members (academics) E-learning
Macro	Other researchers, practitioners	Researcher, Practitioners
	Web Lecture software businesses	Directors
Meso	HBO Raad	Director
	Higher Education in The Netherlands	Those focused on video teaching
	Inholland Board of Directors (CVB)	Members of the board of directors
	Inholland lectureship eLearning	Researchers, web lecture experts
	Inholland web lecture department	Recording technicians
	Inholland MTV Domain	Director
Micro	Inholland Cluster Leisure	Cluster Manager
	Inholland tourism team manager	Programme Manager
	Inholland tourism Curriculum Com.	Committee of three members
	Inholland education experts	Education Experts
	Inholland tourism teaching staff	Lecturers in tourism team
	Inholland Lecturers (not tourism)	Lecturers, Web lecture practitioners
Nano	Inholland Student Panel	Student Panel (tourism)
	Inholland tourism classes	Group of students
	Inholland students (not tourism)	Students (web lecture researcher)

² www.inholland.nl/elearning

Robson (2004) defines a stakeholder as ‘anyone who has a stake, or interest, in an evaluation (in the sense that they are involved in or affected by it)’ (p.16). He further defines several stakeholder categories; policy and decision-makers, sponsors, management, staff, clients, evaluators and interested others. Different degrees of stakeholder involvement in the collaboration of the research process are also defined. Thijs & Van den Akker (2009) describe five levels within the curriculum development process. These levels can be used to place stakeholders within different levels; Supra (national/international), Macro (national), Meso (within the school or course), Micro (individual, or a group of lecturers) and Nano (individual students). Based on these levels, the stakeholders in the current research context are identified in more detail in chapter 3.

1.6 Relevance of the research

When examining the relevance of research, Andriessen (2014) outlines the importance of the tension between the practical relevance of research and the methodological validity. To ensure that research is valid and connects closely to daily practice, Andriessen asks the following five questions; to what extent do the results connect to practice? How can we ensure the results are used? How can the research help to improve practice? How can this be supported by choices of methodology which will ensure that the results are valid? How can this lead to broad statements that are valid and how can this make a valid contribution to what is already known about the subject? These questions provided structure during the research to ensure that the results would have a good degree of relevance. These questions are returned to in the critical reflection. The methodology (chapter 3) is based on research principles that provide valid and transparent results. The subject of video teaching and the use of technology in education remains a topic of interest and the current research provides specific examples that can make a contribution to what is already known about this subject.

Each development in technology has the potential to impact pedagogical practice and the importance of addressing the lack of adequate technology training combined with the impact of technology is considered an important and current subject of recent academic research (Alsofyani, Aris, & Eynon, 2013; Beaudoin, 2014; Guo, Kim, & Rubin, 2014; Johnson et al., 2014; Schols, 2009; Stover & Veres, 2013). The research is also relevant for suppliers of the technical equipment and organisations who are interested in developing the video teaching skills of staff. The ongoing impact of technology on pedagogical practice is currently a subject of research of the lectureship eLearning of Inholland. Videoing teaching as an exercise in itself does not automatically result in better student performance. Further steps are needed to incorporate this format effectively into the structure of the course. The concept of ‘flipping the classroom’ (Bishop & Verleger, 2013), which provides lesson content in advance of the class, can result in the lecturer finding that the ‘normal’ content of their class has already been delivered in advance leaving them with contact time that needs to be filled. Understanding the consequences of video teaching, and the opportunities this leads to regarding interactive exercises and classroom activities, is a complex and relevant topic. The current research contributes to this subject by helping lecturers to understand the process of video teaching, the subsequent consequences from a didactic perspective, and providing a form of support that will assist them in developing their video teaching.

Relevance of the research for Inholland

The current research focuses on one specific educational team, giving insight into their needs and perspectives within their organization. The research is of primary relevance to the lecturers within the tourism team since it is based upon their specific needs to develop their ‘video

teaching'. The research findings could be of interest to other similar educational teams in Universities and Colleges who are developing the video teaching of their staff. Fast changing technology has an ongoing impact on teaching, so providing adequate tools and support to lecturers to understand and develop their video teaching skills, is both timely and relevant. The manager of the tourism team, didactic experts and senior research staff within Inholland also concurred that this is a relevant subject for current teaching practice.

An interview was held with a member of the board of directors of Inholland in May 2014. A transcript of the interview was sent to the Board Member who made a few amendments and a summary was then compiled from this (see appendix G). He confirmed that the current research could play a part in providing support (bottom-up, from within the teaching group) for lecturers and curriculum developers to understand some of the opportunities of video teaching, and to develop video teaching. He also confirmed the relevance of the research by stating that he believed support is needed in order to facilitate this process and manage it in an efficient manner by giving space to the pioneers to act as guides for the future developments. He confirmed that video teaching is a valuable format that can help lecturers develop a professional attitude towards digital education. He stated the benefits of using digital teaching within Inholland, including the potential for increasing the success rate of students on traditionally 'difficult' subjects, the option of using video as part of flipping the classroom to increase learning engagement, and of using technology in a variety of ways to enrich the curriculum. These choices can lead to an intensified relationship between lecturer and student, along with the chance to reach a deeper level of learning. He also stated that video teaching has the potential to be used very effectively as general parts of general courses. He made it clear that there are complexities involved in developing a good level of video teaching, that this is not straight forward and is also time consuming. 'The old fashioned definition' of contact hours and the institutional need to provide a certain number of contact hours per year present a challenge for allocating adequate resources to the development of video teaching. He stated that education is ultimately about physical contact between lecturers and students and that video teaching can facilitate this contact by freeing up classroom time for more intensive interaction. The member of the board of directors concluded by identifying the need for Inholland to progress faster regarding the use of technology in education. He stated that the exact technology strategy of Inholland needs to be developed from bottom up, and top down.

1.7 Research questions

Based on the goal of the research outlined above, the following main research question and sub questions have been defined.

Main research question

What are the characteristics of support that assists lecturers in the tourism team Inholland Diemen in developing 'video teaching'?

This question focuses on identifying specific characteristics of support for lecturers to develop video teaching skills. The following constructs are identified in the main research question; defining certain characteristics of support, the process of assisting lecturers in their professional development and video teaching. The term 'support' is deliberately left open in the question, with the goal of defining it during the research process. The term video teaching is carefully chosen as a broad and general term which is defined during the research. This main question leads to the formulation of the following sub questions based on the three research phases:

Sub questions

Pre research – development specifications

1. What are the qualities of ‘video teaching’ as described by the literature?
2. What different functions can ‘video teaching’ have within the didactic process?
3. What is the current level of experience of ‘video teaching’ in the tourism team?
4. What support does the tourism team need to develop their ‘video teaching’ skills?
5. What opportunities are there in the current tourism course to introduce ‘video teaching’?

Prototype phase

6. What are the characteristics of a support prototype that assists the tourism team to develop video teaching?

Prototype evaluation phase

7. What is the expected practicality of the prototype?
8. What is the expected effectiveness of the prototype?

1.8 Reading Guide

The first part of chapter 2 explores relevant educational theories of learning and teaching. Their relationship to video teaching and the impact of video teaching on students and lecturers is outlined.

The context of video in education and how technological developments are impacting traditional teaching practice. The challenges facing lecturers to adapt and the demands from both students and the external environment are examined. Sub question 1 is answered by examining the qualities of different types of video teaching which are compared to traditional teaching. The types of video teaching are presented and categorised in a diagram. The different functions of video teaching are examined to answer sub question 2. Different types of support are identified, along with an overview of current video teaching support offered by selected Higher Education organisations and other providers. Chapter 3 explains the design research approach and the selected methodology supported by the literature review. Specific stakeholders are linked to the relevant sub questions and methodologies. The different research instruments are described and reasons are given to explain why they are appropriate and valid in this context. The process of data analysis is described for each research instrument and the ethical considerations are outlined, including the effort to reduce researcher bias, and minimise the impact of issues such as language and translation. In chapter 4 the results of each research instrument are outlined and the design specifications for prototype 1 are presented as a set of criteria. Feedback given on these criteria is presented, which focuses on the expected practicality and expected effectiveness of prototype 1. This feedback is then used to refine the set of criteria which are then used in the development of support prototype 2. In chapter 5, conclusions are drawn which link the results to provide answers to the sub questions. The current findings are discussed in the context of previous research and in relation to the theoretical context. These are synthesised into the final answer to the main question. A discussion follows including how the findings have made a contribution at a broader level to the research subject, to what extent the results concur with previous research, and whether they can be applied in a broader context. Recommendations are made in the form of a proposed timeline to introduce the video teaching training course. Areas for possible further research are presented. The research concludes with a critical reflection on the research process and the role of the researcher.

2 Theoretical Framework

2.1 Introduction

This chapter presents a review of literature on video in education and places the subject within its historical context. The development of video use within education is examined through the lens of several didactic theories and models and an overview is given of selected approaches for developing support. The technological developments currently impacting traditional teaching are described and the impact of video teaching is examined from the student and teacher perspective. The different types of video teaching are examined and are presented and categorised in a diagram. The specific functions that these types of video teaching can have in the teaching process are outlined. The challenges facing lecturers to adapt, and the demands from both students and the external environment, are examined. The first two sub questions are answered as a result of the literature review. A set of possible types of support to assist lecturers in their video teaching are outlined and a selection of current video teaching support offered by Higher Education organisations and other providers is presented. Data collected was used to answer the first two sub questions:

Sub question 1: What are the qualities of ‘video teaching’ as described by the literature?

Sub question 2: What different functions can ‘video teaching’ have within the didactic process?

A systematic and methodical on-line search (Robson, 2011) was made as part of the literature review and theoretical framework. The literature review was made by searching academic data bases and online resources. Searches were in both English and Dutch and used the following terms: video teaching, web lectures, training manual, workshops, courses, how to, tips and tricks, live lecture capture, screencasts and support. This search was conducted via Google Scholar, via EBSCO Academic Search Complete and the Inholland academic data base Lybrin. In total, this comprised approximately 70 data bases of academic peer reviewed articles including; Academic Search Complete, Academic Search Research & Development, Education Research Complete, ERIC and Science & Technology Collection (see appendix E for details of five of the databases). Specific attention was paid to current educational theories on learning with technology and the debate on how video can contribute to effective teaching. Journals of teaching and pedagogy were searched in more detail.

To complement the review of scientific literature, several other approaches were taken to identify relevant information. The researcher subscribed to the daily newsletter of Campus Technology³, an information source for professionals in Higher Education. This generated current information regarding conferences, seminars and webinars on video teaching. Two webinars on E-learning were followed via REC:all⁴, a group who specialise in developing and dispersing knowledge regarding recording and augmenting lectures for learning. This led to finding additional literature on the research subject. The researcher enrolled on the Linked-in group ‘Higher Education and Learning’ which is a discussion board of over 40,000 Higher

³ <http://campustechnology.com/pages/about.aspx>

⁴ <http://www.rec-all.info/>

Education professionals worldwide. Two questions were posted to this group which led to suggestions on types of support that already exist and led to further search approaches. From February to July 2014, the researcher curated a Scoop.it site to aggregate up-to-date content on ‘Video in Education’⁵. The researcher collected and shared more than 100 articles on the subject of video in education. From January to March 2014, the researcher followed a MOOC from Coursera ‘History and Future of (Mostly) Higher Education’⁶ which examined the ongoing impact of technology on Higher Education. This provided additional literature and resources from the course, along with providing experience in following web lectures on line, giving the researcher gave insight into the student perspective of watching video teaching online.

A search was made for existing examples of material that support teachers in developing video teaching skills. This search focused on websites of a selection of Hogescholen and Universities in The Netherlands and abroad. The search also examined some generic YouTube instructional videos, and web sites that provide tips for teachers on making videos. An overview of some of the different types of support that exist is presented at the end of this chapter. Data was collected from a variety of contemporary academic, professional, industry and non-academic sources. Where possible, peer reviewed articles were selected. However, in many cases the rapidly evolving nature of the research subject and the informal nature of some of the sources, means that it was not possible for all of the data referred to be academic peer reviewed literature.

Manner of data analysis

All data was converted to pdf format (whether articles, web text, or other data formats). This data was then annotated on an iPad using iAnnotate and saved to a central archive where specific sections could be examined in more detail. Relevant quotations were collected into one word document and grouped under recurring themes which provided the headings for the sections below. These themes were then placed into a logical order. As a result of the literature review, the themes discussed in this chapter emerged and were used to inform the construction of the research instruments as outlined in chapter 3.

2.2 Educational theories and models

This section outlines theories and concepts that are relevant to placing the subject of video teaching in a broader didactic context. Selected theories and models are used as a starting point to provide a structure for examining the effective integration of different types of knowledge when training teachers in technology.

Constructivism, a theory of knowing

The constructivist theory argues that learning is a process whereby the student is actively involved in the process of constructing relevant knowledge, and the more active the involvement, the more potential there is for learning at a more complex level (Simons & Bolhuis, 2004; Valcke, 2010). ‘The contemporary view of learning is that people construct new knowledge and understandings based on what they already know and believe’ (Bransford, Brown, & Cocking, 2000, p.10). Schunk (quoted in Valcke, 2010, p. 238) explains that ‘constructivism does not propound that learning principles exist and are to be discovered and tested, but rather that learners create their own learning’. This perspective that learners ‘create’

⁵ <http://www.scoop.it/t/technology-in-education-by-zac-woolfitt>

⁶ <https://www.coursera.org/course/highered>

supports the idea that each student brings with them their own ‘created’ experience to the learning process but they need adequate support in this process (Simons & Bolhuis, 2004). In order to understand the process it is necessary to be aware of the different ways each student learns starting by establishing what the learner already knows and believes. Within this context, education can be seen as a form of dialogue at different levels between educator and student (Fransen, 2006b; Laurillard, 2002) which can lead to a co-constructivist approach between the student and teacher (Carnell, 2007). Hattie (2009) states that ‘constructivism is not a theory of teaching, but a theory of knowing and knowledge and it is important to understand the role for building constructions of understanding’ (p. 26). When designing video teaching and considering its educational effect, it can be helpful to keep the constructivist perspective clearly in focus to ensure that the student is assisted in taking an active role in constructing the relevant knowledge. Because by its nature, video viewing is passive, there remains an ongoing challenge in how to activate the learning process of students in order to stimulate them to construct relevant knowledge from what is presented on screen (De Boer, 2013)

Effective Teaching, Constructive Alignment and Visible Learning

Effectiveness of teaching is examined by Biggs & Tang (2011) in the theory of constructive alignment and with the Structure of the Observed Learning Outcome (SOLO) taxonomy. This places the active construction of knowledge within the perspective of constructivist theory, and emphasises alignment as establishing correlation between what is taught and what is to be learned and assessed. The SOLO taxonomy examines intended learning outcomes, through phases of ‘increasing structural complexity’ developing from a quantitative to a qualitative phase. Allan, Clarke, & Jopling (2009) examine effective teaching from the perspective of first year undergraduate students. They outline ten features that describe the effective University lecturer, highlighting the importance of lecturer actions that lead directly to enhancement of student learning and the personal skills of lecturers that improve interaction between lecturer and student which could also be related in the context of video. Hattie (2009) confirms that teaching is considered one of the main contributors to learning, describing effective teaching as visible teaching and learning, whereby the learning goals are explicit, appropriately challenging, including deliberate practice and appropriate feedback, and teachers focus specifically on their own teaching, and become ‘learners of their own teaching’. Hattie (2009) did not find significant increase in effectiveness of teaching through audio/visual methods (television, film, video or slides). However, he found that using interactive video methods could have positive effects on student achievement, but many other environmental variables had to be taken into consideration. Any teaching via video has to understand, benefit from, and encourage the ‘interactive’ nature of video (Laurillard, 2002)

Technological, Pedagogical and Content Knowledge model (TPACK)

The TPACK model (Mishra & Koehler, 2006) integrates the separate domains of content and pedagogical knowledge, with that of technological knowledge. The essence of the model is that traditionally, technology (and the associated knowledge) has been taught as a separate ‘silo’ of information than those of ‘pedagogy’ and ‘content’. The model suggests that by integrating these subjects in teacher training and during teaching, a much deeper, more complex, and enriched understanding of the types of knowledge emerges. Of particular interest is the space where the three knowledge domains meet. The knowledge where technological, pedagogical and content knowledge overlap is ‘the basis of good teaching with technology [...] which requires a thoughtful interweaving’ of the three types of knowledge (Mishra & Koehler, 2006, p. 1029).

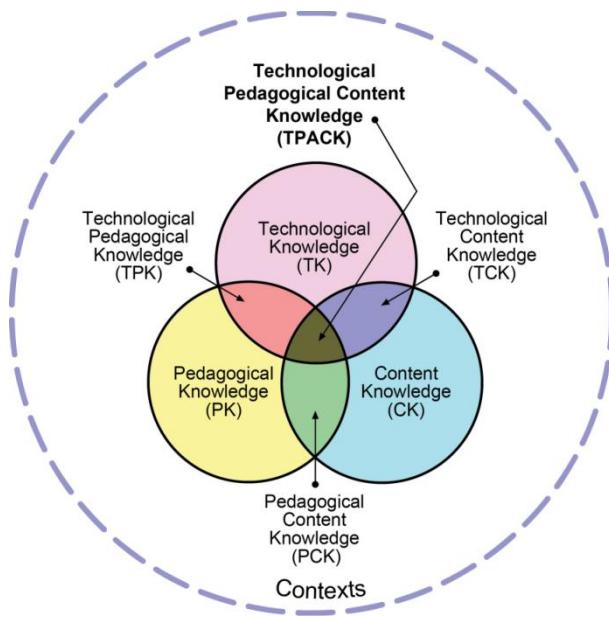


Figure 1 TPACK - Technological, Pedagogical and Content Knowledge (Harris, Mishra, & Koehler, 2009)

As their first example, Mishra & Koehler (2006) use the specific situation of teachers working in groups to make videos to explore educational content and examine the usefulness of the model. The manner in which the TPACK model can be applied in different contexts and the importance of applying TPACK to different types of teaching has been researched by several different sources (Alsofyani et al., 2013; Harris et al., 2009; Kushner Benson & Ward, 2013; Niess, 2011; Stover & Veres, 2013; Swan & Hofer, 2011). In a literature review of 55 documents on the TPACK model, Voogt, Fisser, Pareja Roblin, Tondeur, & van Braak (2013) investigated the theoretical basis and the practical use of TPACK and concluded that getting teachers to be actively involved in the design of lessons that incorporate technology can have a positive effect.

Baran, Chuang, & Thompson (2011, p. 375) confirm that the TPACK ‘framework has provided a valuable tool, both for designing teacher education experiences and for assessing teacher knowledge in the area of technology integration’. The TPACK model can be placed firmly within the ‘constructivist-oriented pedagogy’ (Chai, Koh, & Tsai, 2013). Using technology on its own is not necessarily the answer to better learning results and effective teaching. As Kereluik et al. (2013, p. 133) state, in order to have effective teaching, ‘knowing the technology is important, but knowing when and why to use it is more important’ and the TPACK model can help guide this process.

Transfer, cognitive overload and the multimedia theory

Involving the student actively in the learning process creates the opportunity for near and far transfer of knowledge leading to a deeper and more complex level of understanding (Bransford et al., 2000; Perkins & Salomon, 2006). Certain perspectives on learning can help illuminate the role that video can play in education. The theory of cognitive overload suggests that we learn through the acquisition of schema and automation, and that this should be taken into consideration as part of the process of instructional design. There is only so much information that any individual can process at a given time and a clear understanding of this is important in order to match the learning capacity to the individual (Colvin Clark & Mayer, 2011; Huib K. Tabbers & Merriënboer, 2004; Sweller, 1994). Understanding human cognitive architecture is essential when designing education which incorporates technology and the importance of guidance during student instruction has been outlined (Kirschner, Clark, & Sweller, 2006).

Cognitive load is of specific relevance in the use of video in education. Mayer & Moreno (2003) propose a theory of multimedia learning and suggest nine ways in which cognitive overload can be reduced when teaching through multimedia, in order to ‘use words and pictures to foster meaningful learning’ (P. 43). Colvin Clark & Mayer (2011) recommend that E-learning (which includes video formats) include both words and graphics and provide evidence to support the importance of delivering information in the correct audio and visual mix, in order to create balance in the visual and audio channels of the student. Several principles are presented that give guidelines in how to arrange and present E-learning materials effectively. Words should be placed next to the graphics and spoken words should be synchronised with the relevant graphic (contiguity principle). Words should be presented as audio rather than on the screen as text (modality principle). Visuals should be explained with words or text, but not both and graphics should support rather than distract from the content (redundancy principle). Unnecessary audio should be avoided since it can distract from learning (coherence principle). Lesson content should be carefully planned and segmented into more manageable sections. This segmentation, also known as ‘chunking’ can lead to better understanding and retention (Guo et al., 2014).

Individual student learning preferences

Kolb (1984) argues that learners have different learning styles (concrete experience, reflective observation, abstract conceptualisation and active experimentation) and that understanding this can facilitate learning. Willem Eikelenboom (in Eimers, 2009) outlines five different learning preferences that students can have, from actively acquiring knowledge to experimenting. According to StudyMode, 65% of the United States population is composed of learners who are ‘visual’ (quoted in Johnson et al., 2014). Therefore, it is important to understand the difference learning preferences within the student population and it can be helpful to allow them to learn at their own pace (Schwartz, 2013). This can enable content to be provided in a variety of formats other than the traditional classroom setting (e.g., video) with the potential to make learning more accessible to students with different learning preferences. A number of different ways in which students actually view video teaching have been identified. Some students watch the entire video in one go without stopping, some watch it again having already viewed it, some select a part of the video and view it multiple times, and some ‘zap’ through it skipping from one section to another (De Boer, 2013). This feature is referred to by Laurillard (2002) as self-pacing which provides greater learning control. Understanding the individual learning preferences of students is relevant for lecturers who are recording their teaching with video.

Instructional design of support

When designing educational courses and training material, instructional design principles should be followed which are based on established didactic guidelines. There are many different instructional design models that can be used so a model should be selected that is appropriate. The situation in the current research focuses in supporting lecturers in developing their video teaching. This is a complex and multi-layered process which can be considered complex learning. Van Merriënboer & Kirschner (2009) outline the ten steps of Van Merriënboer’s 4C-ID model. This model is often used for professional trainings developing complex skills, cumulatively building knowledge. The 4C-ID model could be considered appropriate for the complexity of video teaching because it focuses on integrating of knowledge, skills, and attitudes into a daily work environment. The DA-model from Van Gelder (Coppoolse & Vroegindeweij, 2010) provides a useful structure to develop, prepare and evaluate individual lessons through a set of questions which can be applied both in developing support in the form of lessons, and for the lecturers in their individual lessons. This model could be appropriate because it enables the lecturer to oversee the didactic connection between the different components of the lesson. The Interactive Blended Learning (IBL) designer (Swager, 2013) is an interactive strategy for developing teaching practice based on blended learning based on three steps (appendix M).

Step 1 focuses on goals, contextual factor such as the skill level of users and their commitment. Step 2 focuses on the design process including prioritising learning goals, choice of content and assessment. Step 3 outlines the implementation of the new course, including agreements made with students and support needed by staff to deliver it appropriately. The IBL designer is useful in the context of the current design because it gives a clear overview of the context in which the educational course will be developed, viewing the lecturer as the end user of the development process, it includes a blended learning approach in the development phase and there is room for interactive feedback on the design process. This makes it suitable as a basis for the current research.

2.3 Context of video in education

This section places video usage in education within a historical context, examining its development and describes its current impact. The increasing prevalence of technology, the viability and availability of online teaching and the impact of open resources is now firmly on the agenda of Higher Education within The Netherlands and video is playing a role in facilitating these developments (Van den Brink et al., 2014). Greenberg & Zanetis (2012) state that:

Education is undergoing a major shift, as brick-and-mortar classrooms are opening up to rich media content, subject matter experts, and to one another. This shift has been influenced largely by technological and pedagogical trends, greater worldwide access to the Internet, an explosion of mobile phone users, and the appreciation for these technologies by young people, as well as by teachers. Video appears poised to be a major contributor to the shift in the educational landscape, acting as a powerful agent that adds value and enhances the quality of the learning experience (p. 4).

Historical context for the development of video in education

The revolutionary impact of video has been pronounced in the past on many occasions (De Vera & McDonnell, 1985) but according to one of the educational video software manufacturers Sonicfoundry, the use of video as a teaching device in College and University campuses has reached a ‘tipping point’, the point when a new technology ‘is pushed over the edge from popular to pervasive’ (Sonicfoundry, 2013, p. 1).

In 1989, librarians were already questioning how to deal with the ‘video revolution’ and the challenges of accessing and storing the increased amount of video material available to the public (Pitman, 1989). Videomaker magazine gives an overview of the technical developments of video equipment, from the development of the first video cassette by Sony in 1964, to the latest portable devices of today⁷. The overall pattern with the development of video is one of increasing technical specifications, greater quality, higher speed, lighter equipment and increased flexibility of production. Bransford, Brown, & Cocking (2000) discuss video use in the classroom and the importance of interactivity in helping students to learn by being able to revisit and review the material. They emphasise the potential of technology to help learning, but only if it is used properly. De Boer (2013) places the use of video in education in the following context:

The emergence of digital networks, like the internet, disconnected video-watching from a set time because the video can be watched at any time. It has also led to disconnecting the

⁷ <http://www.videomaker.com/videonews/2011/10/history-of-video-now-and-then>

lesson, in some sense, from a set place (i.e. the classroom): the video can be watched on any computer connected to the internet. (p. 17)

Video cassette to DVD to streaming

When the format of video was a physical video cassette, video viewing was restricted by the physical copy of a the cassette (Pitman, 1989). A lecturer could borrow a video from the library and play it to the class via a television screen. This required planning, ensuring adequate equipment was available, and had certain technological challenges ensuring sound quality and visibility of the image. With the advent of streaming video, as De Boer (2013) describes it, the lesson has been disconnected from a set place. A general timeline for video technology in the classroom is presented by SURFnet/Kennisnet (2011, p.5). The timeline below is adapted from Greenberg & Zanetis (2012) and web lectures and screencasts have been added along with live lecture capture. What the 2020s will hold for video technology in the classroom is yet to be seen.

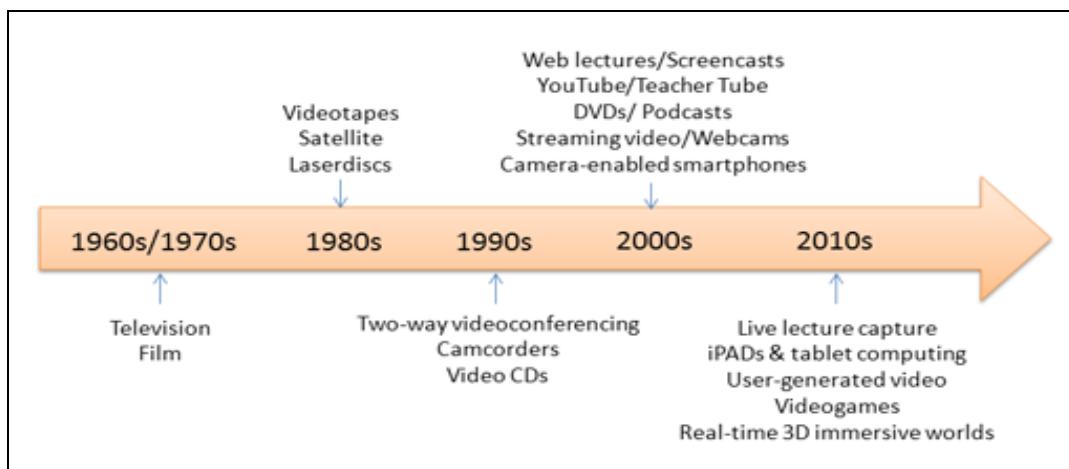


Figure 2 General timeline for video technology in the classroom (adapted from Greenberg & Zanetis, 2012)

Now it is possible for video to be watched by multiple viewers, from different locations, at different times. What was once a scarce resource (copies of the video cassette or the CD-ROM which limited access) has now become widely available online. Video usage currently dominates internet bandwidth (56% in 2012 according to Cisco⁸) and high quality video can be streamed quickly into mobile devices in an educational context. While it took 12.5 minutes to download a song on-line in 2002, it takes only 18 seconds today⁹. The process of making video within education continues to become simpler and less expensive¹⁰ and its use in Higher Education is growing (Bakel & Groot Kormelink, 2011; Panopto, 2014; Sonicfoundry, 2013). The rapid rise of the Khan Academy¹¹ illustrates how ‘homemade’ instructional videos can fill a specific teaching need for students. At the Khan Academy, more than 2,000 videos are accessed around the world more than 100,000 times per day.

Anyone can make a video

Most mobile devices, from smart phones, to iPad and digital cameras now have the standard option of recording video at reasonable quality. These video files can be instantly uploaded to

⁸ <http://www.nscreenmedia.com/1/post/2013/05/video-continues-to-drive-the-web-says-cisco.html>.

⁹ (<http://www.themainstreetanalyst.com/2012/08/22/the-growth-of-the-internet-over-the-past-10-years-infographic/>)

¹⁰ <http://www.21edingen.nl/eding-8-weblectures/>

¹¹ http://www.ted.com/talks/salman_khan_let_s_use_video_to_reinvent_education

YouTube, Dropbox, Skydrive or other cloud servers. Increased access to efficient and inexpensive technology has made recording a video no more complex than pressing a button and pointing. Whether we like it or not, we have entered a new stage in the ‘video age’ in which everything can be instantly filmed including students recording their own classes (Reece, 2013; Winterbottom, 2007). When YouTube reports that ‘100 hours of video are uploaded to YouTube every minute’¹² this astonishing statistic barely raises an eyebrow.

Increased use of video in Higher Education

Johnson et al. (2014) provide an overview of current short-term and long-term trends regarding how technology is affecting Higher Education and consider the integration of online, hybrid and collaborative learning to be a fast trend, driving changes in Higher Education over the next one to two years. The increased use of video as a teaching medium is encroaching onto traditional face-to-face teaching in Higher Education. This affects lecturers, students, Universities and Colleges and there is a need to bridge the gap in digital competencies (Jacobs, 2013). Many lecturers lack adequate knowledge, support, guidance and training to integrate this technology into their teaching, either at a practical, technical level, or at a didactic, teaching level (Stover & Veres, 2013). They may also not be convinced of potential benefits, may be afraid of this new technology, or see no need to change (Reece, 2013). The possibilities offered by new technology can appear overwhelming, challenging and unsettling to traditional teaching. However, technology has a habit of promising much, but without always delivering¹³. Without help, traditional approaches may not be maximizing the technological possibilities. There is often limited structured support offered for lecturers to develop in this context, it mostly happens on an informal, ad-hoc manner and without an adequate theoretical foundation (Mishra & Koehler, 2006). The trend of increased video in teaching is particularly noticeable in Higher Education, where many students arrive at class with one or more mobile devices linked to the Wifi of their learning institution.

Effectiveness of the classical lecture format

The classical lesson format in Higher Education has traditionally been based on the lecture, the one-to-many transmission of information. In the context of technological developments, the effectiveness of this didactic form continues to come under pressure. Even having considered the 800 years of University tradition, Laurillard (2002) asks ‘Why aren’t lectures scrapped as a teaching method?’ (p. 93) and states that from the perspective of individual learning, ‘the lecture is considered a grossly inefficient way of engaging with academic knowledge’ (pp. 93-94). Preston et al. (2010) report the discussion on declining lecture attendance and Day (2008) questions the effectiveness of lectures. Preston et al. (2010) found a need for lecturers to be ‘more reflective in examining their own roles and the roles of lectures in light of the changing needs of students’(p. 725) and a need to make decisions about the role of technology as well as managing student expectations and explaining to students what the specific role of technology is in the teaching structure. Today’s University lecturers may find themselves in a battle to ‘entertain’ the student (audience), in an effort to engage the students. Not all lecturers have the ‘performance skills’ to compete with the attractions of the instant online community of social contacts that students can access via their mobile devices. ‘The expanding horizon of learning possibilities that has opened up in response to this mixture of influences is both exciting and daunting, adding new dimensions to thinking about core educational purposes in [Higher Education]’ (Healey, 2013, p. 7). A generation of lecturers face the threat of falling behind and not adjusting quickly enough to this new environment, being reactive rather than proactive.

¹² <http://www.youtube.com/yt/press/statistics.html>

¹³ <http://www.bbc.com/future/story/20140110-technologys-greatest-myth>

Teaching effectively through video could be considered an aspect of digital literacy (Jacobs, 2013) and in the future might be considered a required teaching skill. Failure to equip oneself with this new skill could affect future career development. Lecturers can stay informed and can actively develop their digital competencies by attending seminars (Van Geloven, 2014). Universities and Colleges who do not embrace video in their teaching could face lack of competitiveness in relation to other institutions that do offer this. Online formats such as Massive Open Online Courses (MOOCs) also threaten the traditional format of education (Fox, 2013) though their long term impact is still a matter of much discussion (Baggaley, 2014). Many students are now studying in environments where classes are offered in person and on line (Allen & Seaman, 2014). Lecturers may experience a problem as they find their teaching skills and digital literacy are not up to date in the new teaching environment (Johnson et al., 2014).

Video availability challenges the traditional role of lecturers in Higher Education

This technology impacts the traditional teaching environment within Higher Education. While some lecturers may be embracing this technology (Greenberg & Zanetis, 2012), there are still lecturers who do not yet have the skills, experience, confidence, understanding or expertise to teach effectively through video, and may not even necessarily see it as part of their job (Beaudoin, 2014). Teaching ‘into camera’ requires an adjustment of established teaching practices and developing a new set of teaching skills (Guo et al., 2014). Kereluik et al. (2013) refer to the ‘sometimes ambiguous impact of technology and globalization on teaching and learning’ (p.131). This ambiguity puts pressure on the traditional teaching formats in Higher Education. Preston et al. (2010) found a need for lecturers to be ‘more reflective in examining their own roles and the roles of [traditional] lectures in light of the changing needs of students’ (p. 725). Lecturers also need to make decisions about the role of technology as well as managing student expectations by explaining to students the specific role of technology in the educational context. Bassili (2008) explains the importance of considering whether instructional technology adds value to the learning process and its experience by students. Using technology simply because it is available does not necessarily lead to effective teaching outcomes. Colvin Clark & Mayer emphasise that E-learning should keep the focus on the learning rather than technology (2011). Any technological aspects must fit into the human capacity for learning. Increasingly there are more options for lecturers to use video as part of their instruction process, whether pre-recorded or recorded live in the class. ‘The introduction of digital technologies has changed the methods and techniques of acquiring, representing, and manipulating knowledge in almost all disciplines, from mathematics to music, astronomy, and archaeology’(Kereluik, Fahnoe, & Karr, 2013, p. 132). The introduction of new technologies is impacting the traditional role of the teacher and Levy (as cited in Jacobs, 2013, p. 47) states ‘it is a characteristic of labour markets that technology can change the nature of work faster than people can change their skills’. Teachers need support to bridge this gap in the skill requirements imposed by the technological innovations as they develop the role of the teacher.

Difficulties in changing teaching techniques

A gap exists between knowledge and understanding for experienced lecturers who are used to teaching in a face-to-face format (e.g. traditional lectures, workshops, coaching, tutorials) and the quickly developing new technologies which seem to offer endless possibilities, but are not easy to adapt to because they require re-imagining the teaching process (Guo et al., 2014). Due to the complexity of the situation, academic resources, time available, underlying fear of change and uncertainty, there is sometimes limited momentum to change established and accepted practice. In some cases resistance and fear exists to adapting, changing, and experimenting with established teaching processes within the written curriculum, and stepping outside one’s comfort zone. For many reasons, some individuals do not warm to being videoed, are camera shy, or don’t enjoy seeing themselves played back on camera (Waters, 2011). Within this

context, traditional ‘frontal’ lectures (because of convenience, cost and accepted tradition) continue to remain a significant part of the delivery of learning (Gorissen, 2013) even as their effectiveness is called into question.

Lecturers in Higher Education need support to use technology

The low digital fluency of faculty is considered a challenge that is understood and can be solved (Jacobs, 2013; Johnson et al., 2014). Many lecturers in Higher Education do not come from a technological background and there is sometimes a generational gap between the technological capability of the lecturer and that of their students (Tapscott, 2009). Lecturers may have inadequate or inappropriate technological experience, and learning how to use new technology can be complicated and time consuming (Bichsel, 2013; Stover & Veres, 2013). Tracey, Unger, & Waddell (2013) consider it imperative that teachers in Higher Education integrate the tools of distance learning into their classes, and these tools can include the use of video as a teaching tool. Hughes & Daniels (2013) state that there is a responsibility for teachers to engage with technological developments; ‘In 2014, no teacher can continue to ignore the technology that surrounds us’ (p. 5). If teachers are to provide students with the skills needed to survive in the digital world, then it is important they understand the technology at a deeper level (Hughes & Daniels, 2013). Kereluik et al., (2013) consider digital communication as being one of the important skills for teachers. In this context, the term digital communication can also include being comfortable, adept and capable in teaching through video. Cobo Romani (2009) describes the importance of teachers in developing their technological literacy as the ‘confident and critical use of electronic media for study, work, leisure and communication [...] represented by the ability to interact with hardware and software, as well as productivity applications, communication devices and management applications’ (p. 21). So while there are certain expectations placed on teachers to develop new technological skills, there is also sometimes a generation and technology gap between teachers and students, which complicates this process and challenges education to be relevant (Johnson et al., 2014).

Lecturers need support to make and then implement video into their teaching

If they are to gain access to the suggested benefits of new technology, and incorporate technology effectively into their teaching processes, then lecturers need appropriate and adequate support to do this in the form of staff development (Laurillard, 2002). Lecturers have traditionally taught their students face-to-face and have developed their teaching skills based on the personal interaction within this teaching dynamic. When a lecturer starts using video to capture their teaching (whether live lecture capture, web lectures or screencasts), they teach into a camera which requires different teaching skills and techniques than face to face contact. Filius & Lam (2009) found that a majority of lecturers they researched wanted didactic support when implementing video teaching; firstly, by seeing examples made by colleagues and secondly, from ICT support. Lecturers considered learning about video teaching as being an important part of their professionalization. Germany (2012) found that once they started using video at a basic level, lecturers need to be supported to find suitable recording solutions in order to move beyond basic video usage. Support is needed at two levels; firstly, the technological know-how to make the video and secondly, help to understand how to incorporate the video into the course so as to have maximum didactic effect. Questions remain about the appropriate form of support needed for lecturers developing this teaching approach. Based on their experience and expertise with technology, it is likely that different lecturers will have different requirements in the type of support they need in order to move forward. Ryan & Tilbury (2013) discuss the potential of flexible pedagogies in Higher Education and suggest that an interesting first step should be to ‘explore the potential of these new ideas [flexible pedagogies] and to understand some of the ways in which they can be embedded coherently in

teaching and learning' (p. 31). There is a clear need from lecturers to receive adequate and accessible support.

When it comes to teaching with technology, or even teaching in general, most faculty could use a little support. [...] much [...] attention is directed to helping faculty evolve their instructional practices for a technology-laden learning environment - whether for online or hybrid courses; as part of active learning programs; or to better exploit the benefits of technical resources such as learning management systems. (Schaffhauser, 2014, p. 1)

The impetus to train and support staff can come from many angles, including the intrinsic motivation from the lecturer to adapt, student demands and expectations regarding a minimal level of technology and external pressures as technology changes and internal organisational developments. All of these put the lecturer in a situation where they need adequate and appropriate support.

The pressure to incorporate new technology is not always matched by adequate training

However, while there is ongoing pressure on Higher Education organisations to stay contemporary by incorporating the latest technology into the classroom, this is not always matched with adequate training or support for lecturers on how to do this. Preston et al. (2010) discuss how Web Based Learning Technologies are implemented by Universities who are trying to adapt to the changing needs of their students. While this is received well by students, teaching staff are sometimes less positive as they try to understand how to deal with the changing teaching environment. Lawrence & Lente-Keenan (2013) identify the contradiction that exists between institutions that promote increased use of online teaching, but do not always provide adequate technical training and consider this to be a subject for further research. Technologies don't define how they should be used but offer a 'zone of possibility' as described by Kereluik et al. (2013). They identify criticism of the current format of many technology training courses where teachers are passive consumers of instruction and are taught by the IT department, indicating that one reason that some technology innovations fail could be due to the quality of the training courses themselves. They suggest that teachers need more help and support in understanding the 'zone of possibility' offered by the technology, what this means for their teaching, and how they can effectively implement new technologies into their classroom. Lecturers have limited time so support can be provided in the form of helpful tools such as workshops, consultation or handbooks (Kliphus, 2008). It is considered important to develop technological professional development programs within a relevant educational context, that connect understanding of how technology and pedagogy interact (Stover & Veres, 2013). They state that 'There is great debate on the issue of the design of professional development programs that teach faculty how to effectively implement technology in the classroom' (p. 94). At the same time, faculty are under immense pressure to learn new skills, but the workshops usually only focus on the technical aspects (Kereluik et al., 2013; Mishra & Koehler, 2006). Filius & Lam (2009) examined where the initiative came from to introduce video (web lectures) into a course. They found that the initiative to incorporate this technology into the class came from the course coordinator 48% of the time, and from the lecturer only 20% of the time. This suggests that in this situation the initiative to implement this technology into the learning environment was being driven more top down, than bottom up. This pressure results in lecturers needing adequate support and training in how to ensure the students benefit from the potential of the new technology.

Summary

The dynamic impact of video teaching in education and the recurring technological challenges are propelled by the enormous amount of video that is being produced, and the continued

simplification of the recording and uploading process, now that mobile devices mean that 'anyone can make a video'. This has spilled over into a significant increase of video use in Higher Education which has put pressure on the traditional forms of teaching, including the lecture format which in turn puts pressure on the lecturer to redevelop their teaching role. Developing new teaching techniques is not easy and lecturers need support to make and implement video teaching into their courses. In spite of the internal and external pressures to incorporate this new technology, adequate training is not always forthcoming.

2.4 The qualities of video teaching

2.4.1 Types of video teaching

This section examines the discussion regarding the different types of video teaching and how they are placed in relation to each other within the educational landscape. Three types of video teaching are identified and defined in more detail. Some pros and cons of video teaching are discussed, along with the specific qualities of teaching via video and the impact this can have on the teacher when using this format as part of their teaching. The information in this section provides the answer to sub question 1.

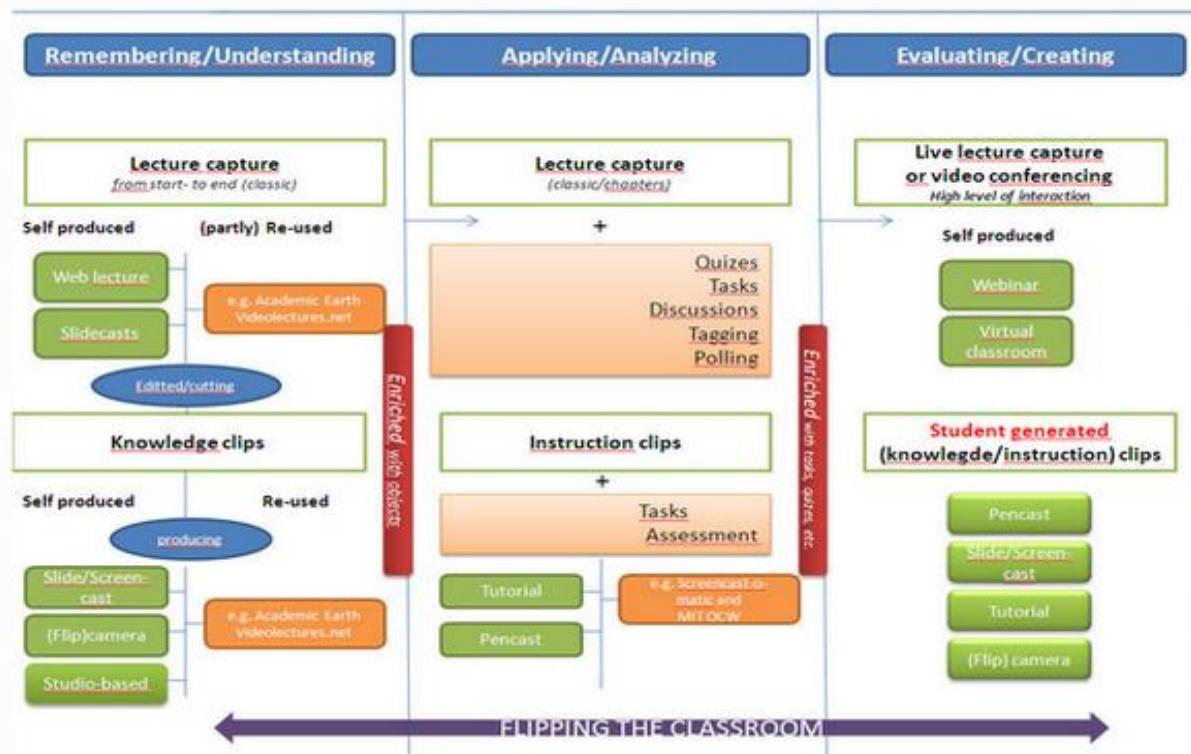


Figure 3 REC:all model (www.weblectures.nl)

There are many different forms of video in teaching, that can be employed didactically in different ways, from lecture capture (Filius & Lam, 2009) to peer feedback on video streaming (Swager, 2008). This is a rapidly evolving field and defining and mapping the various forms is an ongoing process. The REC:all model outlines the different types of video in education. It is based on Bloom's taxonomy and the varying degree of involvement of the teacher and student. This is a complicated set of variables to represent visually. The model is a useful starting point in that it maps many different types of video usage onto one page. But because of the number of different video formats and the lassitude of definitions, it remains challenging to arrive at a clear

overview of the subject. The model is helpful as a starting point when considering the different elements of video teaching.

Web lecture ‘tree’

In a handbook to explain the implementation of web lectures into the teaching process, www.weblectures.nl present different types of video teaching in a model in the form of a plant (Weblectures.nl, 2011). The roots of the plant are represented as constructively aligned education with the explanation that no education can flourish unless the education is firmly rooted in an aligned educational context. The branches on the bush are divided into three types of web lecture (instructional, College, and web lecture in interaction). The higher up the bush, the more advanced (effective) the learning. This visualisation is useful in its focus on the importance of the education being firmly rooted in aligned education and emphasis on the importance of student motivation in the learning process. However, the organic and ‘bushy’ nature of the representation indicates that the mapping out of the different forms of web lectures is fluid, not fully defined, and an ongoing process.

Video Teaching, technological complexity vs. degree of teacher visibility

Having reviewed different ways of presenting, categorising and defining the field of video teaching, the researcher presents the current diagram to the discussion. The vertical axis represents the degree of technological complexity for the teacher, the extent to which the teacher needs to be directly involved with and is impacted by the technological aspects. The horizontal axis represents the degree of visibility of the teacher on screen as a teaching presence. There are also four categories which describe the level of visibility and audibility of the teacher, combined with whether the video image is recorded or not. The central section represents the transition point when a teacher becomes visible as a teacher on screen, stepping from an un-recorded video interaction to an on-screen recorded video teaching presence. When the video image is intentionally recorded for the purpose of future playback it is referred to here as ‘video teaching’. In video teaching the teacher plays an active role, is visible and audible and the screen presence of the teacher has an impact on the communication of the lesson content as an important element in the didactic result. Video teaching requires a shift from traditional teaching practices, and demands a re-imagining of the teaching process, adapting old practices to the new didactic.

Three types of video use fall under this category; live lecture capture, screencast and web lectures. Intentionally excluded from this list are forms of video teaching in which the teacher is not visible and recorded. These include formats such as integrating YouTube clips to lecture content, audio-based slide casts, participation in a webinar where the teacher may not be visible, informal Skype or FaceTime communication with students which is usually not recorded. Skype and FaceTime may be used as a form of interaction by teachers from their personal digital devices or home computer (in the case that this particular software is not available their organisation). The virtual classroom is also excluded from this research because it is not currently used within Inholland. In the virtual classroom, a teacher gives an online lesson to a class of students (some or all of whom are attending the class live online). In this format the focus involves online discussion between students and teachers, some students being visible through their video image. In the Virtual Classroom, the focus may be more on the discussion and interaction between the students and teacher. Also excluded, at the other end of the spectrum, are full-scale film and documentary production. These can include a complex series of filmed instructional videos which require a high degree of technology and post-production support and which require more technological expertise and usually support. They can also include filming the video on location outside the studio, use of green screen, addition of animated avatars and interactive quiz elements, addition of a complex soundtrack and post

production audio and video editing. These categories fall outside the current research because the emphasis may shift from the video teaching skills to the technological post-production. A more detailed description of the video teaching formats is outlined below.

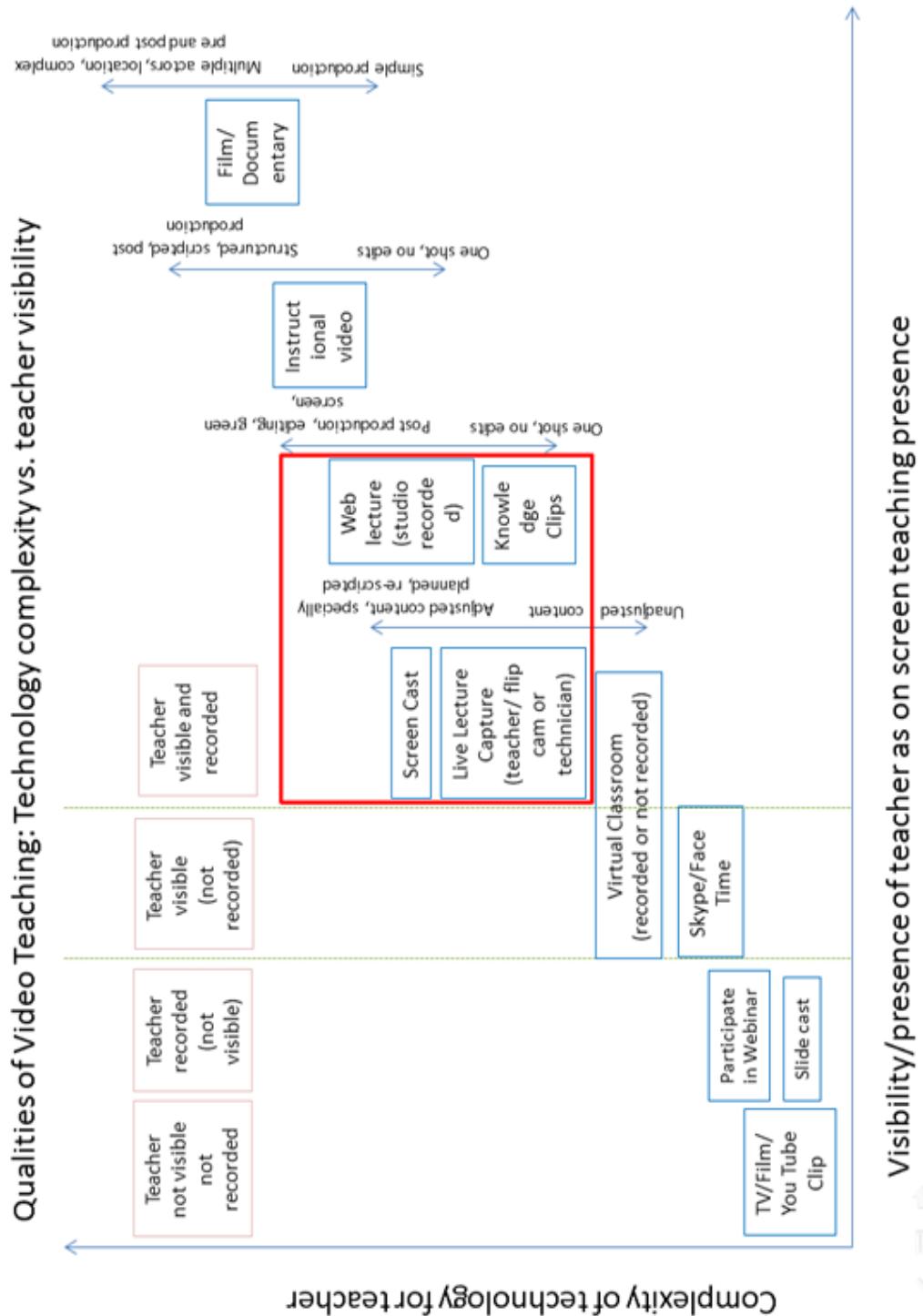


Figure 4 *Technology complexity vs. teacher video presence* (Woolfitt, 2014)

Live lecture capture

Live lecture capture may be the first step into video teaching. A camera is positioned in the lecture room and the lecturer gives their traditional lecture to a live audience and the lecture is recorded for future playback. Deal (2007) describes live lecture capture as webcasting, and defines five processes; classroom presentation, classroom recording, processing and editing, hosting, and distribution and playback. Brotherton and Abowd (2004) describe this as webcasting which attempts to capture temporary and transient information like conversation and writing on a whiteboard while combining it with slides to be accessed later. According to Germany (2012), live lecture capture is the capture (video recording) of live lectures. The lecture capture can take the form of automatically filming the environment of the lecture room, including the teaching area (white board, smart board, power-point screen, audience). It can be made with one or more camera (without a technician), or with a technician guiding the camera to follow the action, filming both the lecturer and the audience.

Gorissen et al. (2012) refers to live lecture capture as recorded lectures which use:

computing technology to facilitate the automatic capture and integration of and access to the media (blackboard, electronic whiteboard, presentation software, etc.) used during a lecture [...]. The lecture dictates the length, contents and structure. [...] An increasing number of Universities support their students by making recordings of lectures available online [...] The recordings are aimed at remote or part-time students as well as at on-campus full-time students that could attend the live lectures. (pp. 298-299)

The process of recording a web lecture started by simply placing a video camera in a standard lecture, and recording it. However, as this pedagogic development has become more prevalent, it has become clear that different pedagogic styles need to be developed in order to increase the effectiveness of this format (Guo et al., 2014).

Sonicfoundry is one of several companies that produce the technical systems to capture lectures and held about 40% of the market share for web capture technology in 2009 (Ramaswam, 2009). They describe lecture capture as:

Recording classroom-based activities in a digital format that students can then watch over the web, on a computer or their mobile device. Lecture capture technology records the presenter's audio and video, as well as any visual aids - laptop, tablet, whiteboard, document camera, visualizer - synchronizes them, and webcasts the stream live or archives for on-demand playback. (Mediasite, n.d.)

Sonicfoundry explain that the term lecture capture is sometimes known under other names, including 'E-learning, video-based instruction, online classes, blended education, hybrid courses, distance education, course-casting, virtual classrooms, virtual learning environments, academic capture and more.' (Mediasite, n.d.). There are several other companies that produce the technical recording equipment to capture lectures such as Presentations2go¹⁴ and Echo 360¹⁵. Panopto simply state that 'On campuses around the world, lectures are recorded to use as an on-demand study resource' (Panopto, 2014, p. 7).

¹⁴ <http://www.presentations2go.eu/lecture-capture/>

¹⁵ <http://www.lecturecapture.com/>

Screencasts

In 2004, John Udell defined the term screencast as ‘a digital movie in which the setting is partly or wholly a computer screen, and in which audio narration describes the on-screen action’ (Udell, 2004, para 1). Several different types of screencast have been identified that serve different purposes; tutorial, short how-to, conversational demo, feature story, animated whiteboard, software review, screencast-enhanced video and concept screencast (Greenberg & Zanetis, 2012; Moel, 2010; OASE, 2011). Gorissen et al. (2012) see screencasts as a variation of a web lecture that ‘focus on what happens on the screen, for example, to explain the usage of a website. Screencasts may contain video of the presenter, but they usually only contain the audio and a recording of the screen’ (p. 298). Gorissen et al. (2012) emphasise that quality can be high because it pre-recorded in a ‘controllable setting’ and the script can be prepared ahead of time. Green, Pinder-Grover, & Millunchick (2012) describe a screencast as a video that can ‘capture computer screen output with concurrent audio commentary’(p. 717), the technology for which was originally used for software tutorials and demonstrations, but has subsequently been adopted by teachers to support student learning. The term screencast has had various other names such as streaming desktop video captures, online tutorials, and screen captures (Betty, 2008 quoted in Sugar, Brown, & Luterbach, 2010).

Many of the screencast software tools are free to download and relatively straightforward to use, such as Screencast-o-matic¹⁶, Jing¹⁷, Screenr¹⁸ or Screencastcom¹⁹. There are also commercial options such as Camtasia Studio²⁰. In contrast to the definition given above that screencasts usually only contain audio, all of the screencast software listed here has the function to capture video of the teacher via a web camera. A Screencast can be made quickly, at almost no cost, and on any device that has the appropriate software. It can contain video of the instructor, or simply audio narration that directly captures the activities on the screen, including mouse clicks and other activities. It is also possible to screencast only a specific part of the screen. The screencast can be made instantly available on a public server, or edited and then distributed via other (secure) channels. The specific nature of a screencast means that it is particularly well suited to explaining and demonstrating a series of steps through the format of a (computer) screen. As a result of this, each screencast software option uses the format of a screencast to explain and demonstrate how to use the software. Screencasts can also be used to give feedback on student documents, increasing engagement and involvement, and saving instructor time (Beaudoin, 2014; Sugar et al., 2010; Winterbottom, 2007). For the purpose of this research, screencasts that capture video image of the teacher will be considered to under the definition of video teaching.

Learning to make a screencast is straight forward as the current researcher experienced. The software can be downloaded in a matter of seconds, and a high degree of plug-and-play leads to instant results. For the lecturer, a screencast can be seen as one step beyond Skype or FaceTime because it requires a degree of planning and scripting, there is no live feedback or interaction with the student and the teacher’s audio (and often video screen image) is recorded.

¹⁶ <http://www.screencast-o-matic.com/>

¹⁷ <http://www.techsmith.com/jing.html>

¹⁸ <http://www.screenr.com/>

¹⁹ <http://www.techsmith.com/screencastcom.html>

²⁰ <http://www.techsmith.com/camtasia.html>

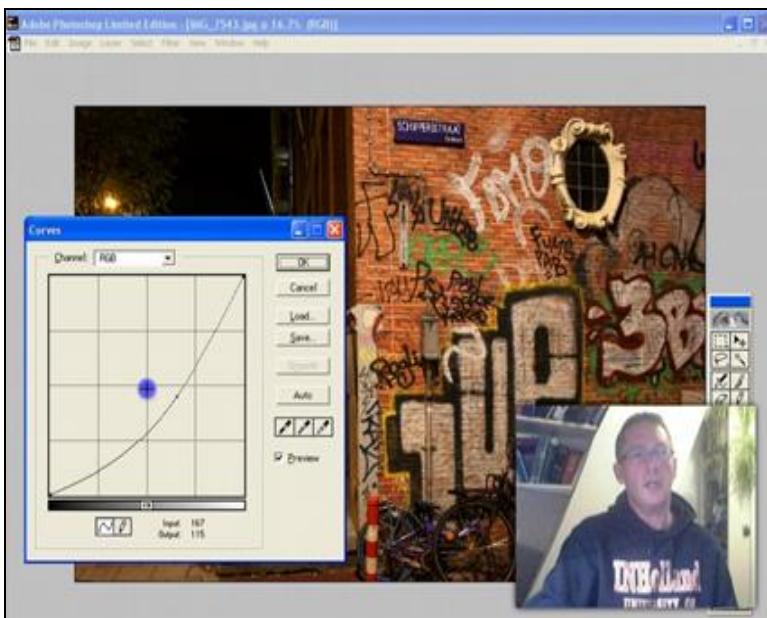


Figure 5 Sample Screencast, Adobe Photoshop demonstration²¹

Because a screencast can be audio only, it can be a good place to practice ‘recording’ the teaching process in a non-confrontational manner where only the audio is captured. In the case of Skype or FaceTime communication, the student may choose to record the audio of the communication, but the actual video image of the teacher usually remains unrecorded and is temporary. Having used Skype communication with students, making a screen cast is an ideal first step into video teaching because of the low technology entry barrier and its informal nature.

Web lectures

Web Lectures are defined as ‘condensed, studio-recorded lectures made available via the web as multimedia presentations that combine video of the lecturer, audio, lecture slides, and a table of contents’ (Day, 2008, p. xi). A web lecture is usually split into two screens. Screen 1 is the screen in which the video image of the teacher appears, the screen in which their video teaching takes place. Screen 2 is where material is presented that visually supports the information presented in screen 1. This can be in the form of a PowerPoint presentation, or writing on a smart board. As the teacher gives the lecture, the software records the teacher in screen 1 and synchronises this with the lecture content in screen 2. A web lecture differs from live lecture capture in that it is made without a live audience, may be recorded in a studio (or teacher’s office) with a technician. There are options for teachers to use software to record their own web lecture without the aid of a technician. The recording process for a web lecture takes place ‘behind the closed door’ of the recording studio. It is a private and intimate recording process between the teacher and the technician. There can be multiple takes and if the teacher makes a mistake, they can re-record the lecture, an option which is not possible during a live lecture. The presence of the technician and the ‘live’ recording studio, may put additional pressure on the lecturer creating additional ‘nerves’ during the recording session. Traditional teaching takes place with a group of students ‘behind the classroom door’. A web lecture is also recorded behind the studio door, but it is recorded ‘in private’ with the technician. However, it has the potential of reaching a much larger audience than could ever be reached within the physical confines of a classroom.

²¹ <http://screencast-o-matic.com/watch/cIXb3wV9V3>

Web lectures are usually shorter in length than a traditional lecture (Day, Foley, Groenweg, & Van der Mast, 2005; Day, 2008; Filius & Lam, 2009, 2010). Gorissen et al. (2012) adds that web lectures 'consist of a studio recording containing a combination of video and audio with a synchronised view of the lecturer's computer screen while displaying a presentation. A web lecture usually does not exceed 20 minutes'(p. 298). Web lectures can be substantially shorter than 20 minutes, in which case they may be referred to as a micro web lecture or knowledge clips and usually focus on one specific subject in detail.

Web lectures can be based on established lecture content (e.g., a lecturer uses the same content and PowerPoint slides as for their standard live lecture) or the standard content/slides can be specially adapted for the web lecture.



Figure 6 Screen shot of sample web lecture²²

Once video teaching has been recorded and made available to the student, students have differing viewing options. They can select from a full screen talking head (just screen 1), to talking head plus slides (screen 1 and screen 2), to slides only (screen 2). Options exist for slowing down (to half the normal speed) or speeding up (to twice the normal speed), pausing, stopping, skipping backwards and forwards at will through slide navigation. The video teaching can be viewed on personal devices with appropriate software. These options enable students to navigate the media based and customise the play back experience based on their individual learning preferences (Panopto, 2014; Sonicfoundry, 2014).

The opportunity exists for web lectures to be interactive. Students and lecturers can enrich the content with social tagging (Ying et al., 2009) indicating important sections, or adding subject headers to guide the viewer to relevant information more quickly. This can act as a form of note-taking which can help students in their learning process, leading to higher achievement (Gorissen, 2013). Adapting to teaching through a web lecture requires adjustments in the teaching approach including having to 'visualise' the student audience (because they are not

²² <https://Mediasite.inholland.nl/Mediasite/Play/109f7e3ca8504005aabca2889384af011d?catalog=d60b0fd0-ade5-4fac-ab04-76bbaf572ad8>

present in the studio). It is also important to have a clearly outlined structure and deliver the information concisely (Guo et al., 2014). By its very nature, a web lecture needs to be carefully prepared and structured in advance. This process can be assisted by using storyboarding techniques to script and outline what will be covered for each section of the lecture (Leeder, 2009).

2.4.2 Impact of video on teaching

Possible benefits of video teaching

Having described the qualities of three types of video teaching in more detail, it is now possible to describe how specific qualities of video teaching benefit the teaching process, and what disadvantages there are. Several potential benefits of using video teaching in the teaching process have been identified. Some benefits have been backed up by research, while others are opinions, or beliefs which need to be researched further. Preston et al. (2010) suggest certain conditions when they see additional value to using video lectures (large class size, students not able to attend for valid reasons, students looking for flexibility, and students who are non-native speakers to the language of instruction). They also suggest situations where using these formats are not appropriate, such as where face to face teaching is used for problem solving, where copyright issues may play a role, or where the lecture content is sensitive or disturbing.

Yousef et al. (2014) examined 67 peer reviewed papers from 2003-2013 that focus on (what they refer to as) video based learning and conclude that use of video in teaching can improve learning outcomes as well as learning satisfaction. Martyn (2009) states that the impact on learning outcomes through video (lecture capture systems) could be significant and deserves to be investigated further. Gorissen et al. (2012) found evidence that studying recorded lectures during exam time increased the chance of students passing the exam although they point out that these results could be due to more active students being the ones who study the web lectures. Filius & Lam (2009) found that two thirds of the lecturers they surveyed felt that using web lectures increased study success. Preston et al. (2010) found that 76% of students they surveyed considered the video format (Web Based Learning Technology) to have a positive impact on their learning, and to make it easier to learn. In Manchester University, over 90% of students believed watching the recorded lectures would increase their exam performance. For one specific course where the only difference to the previous year was the availability of lectures online, there was a significant positive difference in exam results (Reece, 2013).

Possible disadvantages of video teaching

In general, the research into video teaching is positive, showing support from students and some lecturers. However, Ryan & Tilbury (2013) state that while Information Technology use in class can broaden the learning experience, they warn it could also lead to a downgraded pedagogical interaction, challenging the reasons for its implementation. Reece (2013) describes the concerns voiced by teaching staff that introducing lecture capture would lead to reduced lecture attendance. However, no significant decline in students attendance at live lectures was observed by Filius & Lam (2010). Nashash & Gunn (2013) found that technical difficulties in accessing the content of videoed lectures provided frustration and resulted in students wasting time trying to resolve these difficulties.

Impact of video teaching on the role of the lecturer

While some lecturers may be comfortable using new teaching technology, others may have inadequate or inappropriate technological experience. Learning how to use new technology can be complicated and time consuming; 'Many faculty may have attended College when educational technology was not as predominant as it is today. Learning new technologies and figuring out how to effectively integrate them into a classroom can be time consuming for an

already busy faculty' (Stover & Veres, 2013, p. 97). At Manchester University many lectures are automatically recorded. The academic policy gives lecturers the chance to opt out of this process per lecture (Reece, 2013). Opinions of teaching staff have been polarised by the introduction of this large scale lecture capture process. Concerns from staff give insight into areas where they feel that this technological adaptation is changing and impacting their role as a lecturer. Examples of concerns raised include; lecturers do not want to be recorded, intellectual property right and copyright issues of lecture content, fear that lecture attendance will decline, concerns that material cannot be controlled once it has been distributed, concern that the video will be used by management when assessing the performance of the lecturer, and finally, that this process was pandering to student needs. However, Reece (2013) replies to these concerns by stating that 'The almost ubiquitous nature of recording devices (Dictaphones, mobile phones, etc.) means that, even in the absence of University-enabled lecture recording, teaching staff must assume that all group-based teaching activities are already being recorded' (p. 7). This encapsulates aspects of the changing teaching environment in Higher Education. Whether University lecturers want to be formally recorded or not, technology available to students means that they most probably will be recorded.

Teaching into camera

Beaudoin (2014) explains that teaching online 'is not a direct transfer of the traditional face-to-face class [and it may require] a different set of skills that may not come easily to brick-and-mortar instructors' (p. 1). Once a teacher starts using video, the nature of the teaching dynamic changes (Waters, 2011). Teaching traditionally involves unrecorded live-interaction between teacher and students which usually takes place behind a 'closed' classroom door. What a teacher says, how they interact and communicate, has not normally been recorded. Teachers are not used to having their teaching recorded and may only have done this during their teacher training, or intermittently throughout their career. However, once a teacher starts using video to record their teaching, whether from their own choice, or as a requirement, it means that their teaching becomes available to a wider audience. A teacher may be concerned about 'making a mistake' on camera, saying something that is not true, or being caught in an awkward situation. They may have concerns about how they look on camera, and their 'video identity', how they come across. They become exposed to a larger audience and lesson segments can be checked and replayed. Deal (2007) reports that lecturers reported reviewing their own recorded videos with the purpose of reflecting on their own teaching processes, self-evaluation, and learning from mistakes.

Challenges for the teacher

There can be an element of fear or lack of confidence for some teachers to be recorded on video. This exposes their teaching skills to a wider public of peers. This can have an impact on teacher's levels of motivation and self-confidence (Waters, 2011). At the same time, it can also showcase excellent teachers and enhance their public academic profile. Some support for teachers unfamiliar with teaching via video (with their own image on camera) would be necessary. However, this would likely become less necessary as more teachers become familiar with this tool (Germany, 2012).

2.4.3 Answer to sub question 1 - The qualities of video teaching

Based on the literature review, the qualities of video teaching can now be defined. In this research, the choice was made to focus on a teaching skill that is novel to many lecturers in Higher Education, teaching through video. This choice specifically excludes other uses of video in education where the teacher is not visible (such as showing a YouTube video clip in a class, video recording of student assessments final presentations, writing on tablets through 'Khan' style videos, and student generated content). The choice was also made to exclude types of video

teaching which require complex post-production and editing, such as documentaries or films (see Figure 4). The literature review specifically focused on three types of video teaching in which the teacher was visible and audible; live lecture capture, screencasts and web lectures. The qualities of these types of video teaching have been outlined in the literature review above and are concisely summarised here.

Live Lecture Capture

Live lecture capture involves the videoing of a classroom presentation with a live audience plus a subsequent processing, editing and hosting. Non-persistent information such as speech or board writing are recorded to be accessed at later time by students, via the internet on a computer or digital device. The videoing can take place automatically or with a technician and can include just the teaching area or the audience as well. The software enables the viewer to make selections when viewing the lecture including selecting just the teacher, the slides or white board, or a combination of these. In some cases, lectures are simply recorded and no adjustments to teaching technique are made. Subsequently there is a didactic approach that needs to be developed when being filmed while teaching a live audience.

Screencasts

A screencast is a digital movie which records the action on a computer screen. Screencast software includes the option for videoing a talking head, or pure audio from the teacher. Mouse clicks, movement of mouse pointer, and multiple screens can be shown. A Screencast can be instructional, can give a demonstration, or can be used to give feedback on student work. There is potential for high quality where adequate preparation time is allowed. A Screencast is linear and requires good preparation, and it can be fully or partly scripted. Screencast software is available for free from a variety of sources, can be easily downloaded. The end product is often a video link on a server that can be password accessed. In the current research, only screencasts that include a video image of the lecturer will fall under the definition of video teaching.

Web lectures

Web Lectures are concise lectures that are recorded in a studio without a live audience. The finished lecture combines video of the lecturer (in screen 1), audio, lecture slides, and a list of slides that can be navigated (in screen 2). Web lectures tend to be shorter than regular lectures. A web lecture may focus on one specific piece of knowledge, in which case the content of the traditional lecture needs to be ‘chunked’ into sections. While web lectures may have been recorded using the standard slides of the lecturer, it is often the case that slides and presentation are reworked and redeveloped specifically for the recording of the web lecture. Since there is no live audience, this also requires a shifted didactic from the teacher envisioning the intended audience and presenting the lecture to that audience via the camera. There are options for the recorded content to be ‘tagged’ to assist navigation. This can be done by the lecturer or students.

Differences between video teaching and traditional teaching

In order to provide a more complete answer to the qualities of different types of video teaching from the perspective of the teacher, specific aspects of the three formats have been collected from the literature and compared with the qualities of a traditional lecture format. These three types of video teaching described vary between live and studio recording, with additional or limited preparation from the teacher, with varied search and tagging and navigational functions for the student and teacher. They can be viewed live or asynchronously and can be repeated, sped up, slowed down, or searched for relevant content. The definitions provided by the literature usually focus on the technical aspects of the process, defining and describing the recording process. However, there is little information in the definitions that explains in any

detail the actual nature of the teaching process and how this differs from standard teaching. The definitions are technical and present an explanation from the perspective of the camera rather than that of the teacher.

Table 2 Qualities of video teaching vs. traditional lecture

Element	Traditional lecture	Live Lecture Capture	Screencast	Web Lecture
Live audience	Students	Students (technician)	None (self-made)	None (technician)
Video	None	Video camera/technician	Web cam (usually on computer). Option for video and audio, or audio only	Media site and similar camera
Lesson on content	Unadjusted	(Usually) unadjusted	Improvised or scripted	Outlined, scripted
Location	Classroom/lecture hall	Classroom/lecture hall	Anywhere (often office or at home)	Usually a recording studio
Delivery	Non - linear, improvisation with room for student interaction	Non - linear, improvisation with room for student interaction	Linear/non-linear (with room to improvise if jumping between screens)	Carefully planned, linear, may be scripted
Transient/ permanent	Transient/non-recorded	Recorded/permanent	Recorded/permanent	Recorded/permanent
Student playback	No	Yes	Yes	Yes
Synchronous student interaction	Yes	Yes	None	None (some possibility of asynchronous social tagging)
Length	Standard lecture length	Standard lecture length	Usually 5 to 10 minutes	Usually 5 to 20 minutes
Lecturer role	Performer/Sage on the stage	Performer/Sage on the stage, may also teach to camera	Personal communication/intimate (via video, or audio only)	Formal studio setting, presenter/newsreader
Speed	Live, normal	Live, normal (adjustment possible on playback)	Recorded, normal speed (adjustment possible on playback)	Increase/slow down playback speed available
Navigation	None	Rewind, fast forward, pause, replay	Rewind, fast forward, pause, replay	Rewind, fast forward, pause, replay.

This overview presents several similarities and differences of the three types of video teaching in relation to a traditional lecture format and can be used as a basis for gaining understanding regarding the nature of these three formats and what consequences this can have on the qualities of video teaching needed to use these formats effectively.

Video teaching is a skill that is different to traditional face to face teaching and requires practice. There are teachers who have not yet developed this skill, don't have experience, may miss confidence and knowhow to teach effectively through video, and many teachers do not necessarily see it as part of their job (Beaudoin, 2014). Teaching 'into camera' requires an adjustment of established teaching practices and developing a new set of teaching skills (Guo et al., 2014). Video teaching challenges the traditional lecture format (Preston et al., 2010). When teaching through video, the teacher needs to be aware of potential cognitive overload, the amount of information that individuals can take in through the audio and visual channels. Digital technologies change the methods of teaching and acquiring information (Jacobs, 2013; Kereluik et al., 2013). As a developing form of teaching, video teaching can put pressure on teachers to keep their digital teaching skills up to date (Johnson et al., 2014). Video teaching is not every

teacher's first choice of didactic approach and many teachers remain camera shy (Waters, 2011). Video teaching can be confrontational in how it 'captures' the teacher, taking them out the classroom and putting them onto the screen 'permanently', a place where they may not wish to be. Video teaching may also be a technological challenge or threat for some teachers which is confrontational (Hughes & Daniels, 2013; Stover & Veres, 2013). Video teaching is complicated and not straight forward meaning that it is often a form of teaching where the teacher needs additional support (Filius & Lam, 2009) at the technical and the pedagogical level (Germany, 2012). Video teaching is an area that is still being defined and various efforts to chart and map out the different types of video teaching and their didactic function, can be confusing to non-experts REC:all model²³ and 7 OASE model²⁴. Figure 3 makes a contribution to the discussion.

These three forms of video teaching have then been compared in a table with the traditional lecture format to highlight the technical and pedagogical qualities of video teaching. Although there is an ongoing discussion²⁵ regarding exact definitions and terminology the descriptions given above will be used in the context of the research when examining 'video teaching'. The basic qualities of video teaching are different to traditional teaching in a number of ways, and at several levels. This results in a need for a changing and emergent pedagogy. Video teaching remains at its core, teaching. But it is teaching through the lens of a camera in the form of a video image with sound. It is not always a straight forward process transferring traditional lessons to a video format and the different ways of doing this and the functions of video teaching will be discussed in the answer to sub question 2.

2.5 The functions of video teaching

2.5.1 Overview

In this section the second sub question is answered by examining the different functions that video teaching can have within the didactic process. Direct and indirect functions can be identified. Direct functions are those that directly impact the didactic process (such as enabling replay of video for students with learning difficulties) and indirect functions are due to the nature of video teaching (such that it frees up time for other didactic in-class activities). Fransen (2006b) develops Reinmann-Rothmeier's division of E-learning into three forms, based on the position and role of the student learning from (information, feedback and different perspectives) and the function of the new media (distribution, interaction and collaboration) and concludes by emphasising the importance of focusing on the student and their perspective of the learning process in a given context. Aspects of E-learning can be categorised as polarities; learning content, communication, learning process and learning strategy (Gierke, Schlieszeit, & Windschieg, 2003). The media of learning content can be delivered locally (such as a cd rom) or spread (such as the internet); the nature of communication can be synchronous or asynchronous; the nature of the learning process can be at an individual or group level, and the learning strategy can move from being very structured and linear, to being more non-linear and interactive. Video teaching can serve the purpose of an instructional format by which a teacher demonstrates a specific process (a mathematical equation worked out on the whiteboard, or a practical demonstration of a specific process). The video image of the teacher may or may not be visible in this format. A video recording of teaching content can also be used to overcome the

²³ <http://www.weblectures.nl/content/varianten-0>

²⁴ <http://www.weblectures.nl/content/varianten-0>

²⁵ <http://www.weblectures.nl/content/varianten-0>

challenge when, due to logistical or practical reasons, a group of students cannot be present at one time or place to receive the information from the teacher. This might apply to an explanation of a graduation process for students who are abroad on a work placement. In this case, the video teaching serves the function of overcoming limited teacher resources in combination with a physically absent student population, where synchronous communication is not possible. Video teaching can also be used to enrich and supplement already existing literature, such as explaining organisational protocol or emphasising the importance of certain parts of a document through focusing on specific aspects. Having outlined the current situation regarding some functions of video technology in Higher Education, some different formats for teaching via video are examined in more detail below.

Greater availability makes content accessible to a diverse student population

Marinissen & Gratama Van Andel (2012) suggest that alternative approaches of delivering material can offer good options to reach students of different levels. Several Colleges and Universities have implemented live lecture capture with the specific intention of making lesson content available to students with disabilities (Reece, 2013).

Cost effective, time efficient and enjoyable for students

Another function of video teaching can be seen as a better use of resources to enable deeper didactic interaction in other formats. Day (2008) found that courses with web lectures were efficient, citing achieving equal or higher student results with 25% less classes. Once video material has been created, it can be re-used by the lecturer (or fellow lecturers) in a subsequent lesson cycle (Gorissen, 2013). And it can be viewed multiple times, at a speed and time that is convenient to the student. Day (2008) found that implementing the web lecture format was inexpensive and easy to do, while increasing the engagement of students and turning the classroom into a space of active learning. He provides evidence that this format was effective and the students found it enjoyable. Moving more classes online can also be cost effective (Schwartz, 2013). Video teaching by its nature is also more intimate which can bring the teacher closer to the student. While it is important that students enjoy the learning process, as Kirschner & Van Merriënboer (2013) argue, students are not always the best managers of their own learning in the digital world so any perceptions of students claiming improved learning should be carefully examined. The fact that students indicate a preference for a certain learning format should not necessarily be equated with the fact that it is the most effective didactic format, so adequate evidence must be provided to support any implementation of this educational format. Gorissen et al. (2012) found both discrepancies and similarities between how students reported watching video and what the data from the lecture capture system said and found that viewing recorded lectures could serve the function of exam preparation. Nashash & Gunn (2013) found that students considered lecture capture as an effective way to help them study, with 24 hour availability and the opportunity to review material.

Freeing up in-class time for interactive learning

Day (2008) found that in 'light of contemporary learning theory, the traditional one-to-many lecture still prevalent in most classrooms is arguably not the most educationally effective' (p. 19). This statement can be attributed largely to the inherent lack of learner engagement in passive lecture settings. Lengthy lectures which transmit large amounts of information are less and less matched to current student learning desires. The function of lectures has been questioned due to inefficient use of educational resources which usually focus on lower level learning goals (Preston et al., 2010; Woo et al., 2011). Day (2008) found that video usage can be a way to 'decrease the in-class time spent on information transfer and increase the in-class time available for more engaging learning activities that facilitate learners' active knowledge construction' (p. 19). This time can be used to activate students to engage directly in relevant

learning activities (Bishop & Verleger, 2013). ‘The extra in-class time available as a result of using web lectures can be used to answer questions, discuss difficult subject material, and engage in meaningful learning activities’ (Day, 2008, p. 29). Social tagging can play a role in creating interaction between the student and lecturer and help lecturers understand which parts of their teaching are clear and effective.

Video teaching can play a part at many levels of E-learning and can be used for distributing information, creating interaction within the learning process and as a part of the collaborative process (Fransen, 2006b). The aspects of E-learning presented by Fransen (2006a) can be applied to the three types of video teaching and the traditional lecture.

To clarify the different functions of the three types of video teaching, they are compared in a table with the traditional lecture format.

Table 3 *Different functions of video teaching vs. traditional lecture*

Element	Traditional lecture	Live Lecture Capture	Screencast	Web Lecture
Synchronous Interaction	Some	Some	No, one way	No, one way
Distribution	Local	Local or spread	Spread	Spread
Collaboration	Minimal/some	Minimal (possible tagging)	No	Minimal (possible tagging)
Assignments	In class, group/individual	In class, group/individual	Possible explanation of assignments	Questions, quiz, assignment explanation
Discussion	Yes	Yes	emailed questions afterwards	emailed questions afterwards, tagging
Reviewing information, revision	(student's) Lecture notes, lecture slides	(student's) Lecture notes, Power Point slides, playback	Multiple replay	Multiple replay
If student not present (ill, absent, abroad, physically unable to attend due to medical situation)	Lecture notes from fellow students, lecture slides, no live lecture content	Complete review possible	Complete review possible	Complete review possible
Student diversity (non-native speaker, learning difficulties)	Students must attend lecture and follow it as best they can	Multiple play back can enable better learning from diverse student group	Multiple play back can enable better learning from diverse student group	Multiple play back can enable better learning from diverse student group
Augmented information	After lecture, information posted on electronic learning environment, links and files in lecture content	Additional information can be posted via the electronic learning environment	Attached web links	Additional information can be posted via the electronic learning environment
Individual Feedback	Minimal	Minimal	Individual feedback per student	No
Student practice tool	No	Minimal	Yes	Yes

2.5.2 Answer to sub question 2 - The functions of video teaching

Each one of the teaching formats outlined has its own combination of features that enable it to serve different functions. There are a number of functions that video teaching can be used for. Video teaching can be used to record the lecture content in live lecture capture which serves the function of acting as an extra service for students who may be absent for any reason, for student revision, for freeing up time for students who do not need to make so many notes in class, to check their notes from class again when reviewing the lectures, for clarifying difficult concepts, for ‘multiplying’ the teacher by making their lesson available on a repeated basis (increasing the time that the student is studying each time they review and replay the video teaching). Video teaching can also be used for explaining processes and procedures which while not directly related to teaching (e.g. learning goals), they are indeed an important factor in how students arrive at their learning goal (which is connected to study success). Being available on screen via video teaching can bring the teacher closer to the students, personalising the interaction, increasing intimacy of the teaching process. Video teaching can also be used to create interaction when there are opportunities for social tagging of teaching content, enriching the level of navigation through student crowd sourcing. This social tagging can also serve the function of giving feedback to the teacher on those aspects of the video teaching that were unclear, confusing, or good. This specific feedback is rarely available to teachers in a traditional setting. Web lectures and screencasts present information in smaller ‘chunks’ which are manageable sized pieces of information that can be viewed in a user controlled environment , which can aid student learning (Mayer & Moreno, 2003). Screencasting can be used as a technique to record individual feedback on student work. There are a broad range of functions that can be described in relation to video teaching, and understanding these options is important in order to integrate video teaching into the didactic structure.

The answers to sub question 1 and sub question 2 define criteria for the development of the support prototype to help lecturers develop their video teaching. These are presented in the results section.

2.6 Formats for supporting video teaching

Table 4 *Formats for video teaching support*

Format	Description
Handbook	An instructional handbook can be developed that explains the subject and gives information on how to do video teaching.
Instructional Video	An information video (based on the contents of the handbook) could be developed to present the current situation regarding video teaching, along with examples of how to begin, technically and didactically.
Screencasts	A Screencast can be made to demonstrate different possibilities. This format works best for making Screencasts.
Web lectures	A series of web lectures could be recorded that demonstrate by their form the different options available for video teaching.
Facilitating opportunities to do video teaching	Teachers can be supported and encouraged to identify opportunities in their teaching where video teaching could be incorporated, their teaching prepared and then recorded.
Workshops	A series of workshops, taking place for a limited time on several days, could be set up to introduce teachers to specific types of video use with hands on experience with the equipment, software and didactic concepts.

Training Course	A training course (featuring several sessions on different days) could be developed in order to practically train teachers in the use of video in their classroom. This would require preparation and reflection on the learning process. This could involve all or some of the different forms of video use.
Coaching	Analysis of teacher recorded video teaching could be discussed with a video coach in an intensive reflective environment to track progress of learning goals.

While teachers are often eager to improve their teaching skills and results for their teaching, there remains the challenge of bridging the (growing) technological gap between pioneers of new technology implementation and those teachers with limited technological expertise (Fransen, 2013a). Teachers should be involved in designing the kind of support they need in this specific situation. Some teachers may already have independently developed expertise in this area, others may be novices, so that any support needs to be provided at the correct level. The training of ‘video teaching’ can be placed within the context of the TPACK model (Mishra & Koehler, 2006) and related to the relevant learning models and theories as discussed here. The theory of multi-media learning (Colvin Clark & Mayer, 2011) can be used so that teachers are aware of the best ways in which to teach without overloading the student’s visual and audio channels. Teachers often find it useful to see examples of colleagues teaching through video in order to understand what the potential benefit is. Listed below are some different formats in which teachers could be supported, starting with the simplest format of a handbook and advancing to the more complex format of training and coaching. The different formats outlined above give a variety of suggestions regarding format for support. Each one would need to be developed using sound instructional design processes (Fransen, 2007; Merriënboer, Clark, & Croock, 2002)

Existing support for lecturers to develop video teaching skills

There is already much information available about how lecturers can make the transition into video teaching. In The Netherlands there are 38 Hogescholen²⁶ and 14 Universities²⁷. Many of these institutions are actively involved in developing and researching video teaching. An online search was made of the types of support information that is currently available from these organisations. Websites of a few Hogescholen that offer similar courses to Inholland have been examined for the support they currently offer on line to lecturers in developing video teaching. Information from a couple of Universities, both in The Netherlands and abroad is also included. The resources provide general tips on how to make web lectures and screencasts and how to adjust one’s teaching for the camera. The examples collected below are not exhaustive.

Inholland web lecture department and Lectureship eLearning

The Inholland web lecture department has been making web lectures since 2009. On the internal Inholland intranet an intake form is provided for lecturers wanting to make a web lecture (whether live lecture capture or studio recorded). Once the lecturer returns the completed intake form, a technician follows up to talk through the recording process in more detail and to give feedback on the proposed teaching materials. An archive exists of all the web lectures recorded to date. Some of these are only available within Inholland, others are available to the general public.

²⁶ (<http://www.verenigingHogescholen.nl/Hogescholen/over-Hogescholen>)

²⁷ (<http://www.rathenau.nl/nc/web-specials/de-nederlandse-wetenschap/organisaties/universiteiten-en-umcs.html>)

The Inholland Lectureship eLearning²⁸ provides technical and didactic support to teachers making web lectures. Because Inholland's educational technology strategy is not currently clearly defined, the future of this group and its role within the organization is awaiting clarification. The group gained experience from 2009-2012 under the project 'Didactic scenarios with web lectures' producing, publishing and embedding web lectures within a specific teaching practice. Knowledge developed in this context is shared inside and outside the organization through discussion papers and the website. The lectureship works in close collaboration with the Inholland web lecture department to develop support for lecturers.

Weblectures.nl²⁹ is a consortium of 17 Universities and Hogescholen in The Netherlands and Belgium that provides an online platform to discuss and share information about web lectures. The resource provides an overview of different types of video teaching, several models and examples of web lectures explaining the preparation steps for lecturers and how to approach the process. A Linked-in group informs members of news regarding upcoming congresses, sharing slides and recent presentations in an up to date resource of current developments (Breuker & Rosendaal, 2014).

The list below presents a selection in alphabetical order of some of the Weblecture.nl members, along with a couple of other national and international Hogescholen and Universities who are active in web lectures.

Delft University of Technology The Technical University of Delft provides a succinct 6 minute web lecture³⁰ of presentation tips for an online lecture. This addresses practical aspects such as the restricted area that the camera records, microphone use, language use presentation tips when writing on the board/smart screen. The TU Delft also provides media training³¹ for its lecturers along with a clear explanation that online teaching is different and requires adjustment of traditional teaching skills.

Fontys Hogeschool³² has some web lectures publically available and provides a resource to other databases containing video teaching.

Haagse Hogeschool The Haagse Hogeschool gives a short overview³³ of different types of web lectures with examples that provides basic practical support for the lecturer regarding the specific didactic shift that needs to be made and advise the lecturer to simply try it out.

Hogeschool van Amsterdam The HVA published a vision document on new media in education in which they ask how lecturers can expand their teaching repertoire to take control of the process of modernising education (Jacobi, Van der Burg, & de Groot, 2012). There are also links on the site to a number of recorded web lectures that are available to the public.

Hogeschool van Arnhem en Nijmegen The Hogeschool Arnhem and Nijmegen lists some aspects of web lectures³⁴ on its blog³⁵. They also present information about tagging options and

²⁸ www.inholland.nl/elearning

²⁹ www.weblectures.nl

³⁰ <http://Collegorama.tudelft.nl/Mediasite/Play/8858c3cb-4254-42d2-8b9e-def7fb3d745b>

³¹ <http://www.slideshare.net/RECall LLP/leon-huijbers-recall-2013> (slides 50-62)

³² <http://fontys.nl/ACI-eLibrary/eLibrary-materials/Weblectures.htm>

³³ <http://sites.dehaagseHogeschool.nl/icto/weblectures/voorbeelden>

³⁴ <http://blog.han.nl/onlineeducation/?s=weblecture>

examples of web lectures including links to short videos on using different software. An interesting example³⁶ from HAN is the web lecture on the multimedia theory of Richard Mayer where the main principles of the theory are clearly explained. This is an example of providing information that is specifically relevant for lecturers who are in the process of making web lectures. And the format of a web lecture is used to demonstrate how it should be done.

Hogeschool van Utrecht The Hogeschool van Utrecht has a public catalogue of its web lectures which shows the subject of the lectures, the date recorded and the number of views. This gives an insight into the activity regarding web lectures. The catalogue can be sorted based on number of views. The top lecture viewed was viewed 3,422³⁷ times (as of June 16th, 2014).

K.U. Leuven Gruyter, Verraest, Luyten, & Driessens (2011) produced information for KU Leuven about web lectures. This provides background information about what web lectures are with specifics on the systems and the elements that make a web lecture along with technical details. However, there is little practical information about how the lecturer has to adjust their teaching in front of the camera.

Massachusetts Institute of Technology The Massachusetts Institute of Technology video channel³⁸ lists over 12,000 videos publically available in its catalogue that can be searched by category, type, date and alphabetically.

Universiteit van Utrecht The University of Utrecht lists 7 ‘tips³⁹ for making web lectures’ on one of its web pages and has a good overview of different web lectures available.

Universiteit van Amsterdam⁴⁰ The UVA has a resource on video teaching including didactic and technical aspects, author’s rights and selected web lecture projects.

Vrije Universiteit The Vrije Universiteit has a series of pages⁴¹ on how to make a web lecture. Most of this information focuses on the technical aspects, how to reserve the location, and the use of different programmes for do-it-yourself recorded lectures. They also provide clear access to the library of video teaching that has already been recorded.

In addition to the resources listed by Higher Education organisations, some informal sources are listed below which provide a variety of support for teachers to develop video teaching skills and (listed alphabetically).

How to record your own MOOC⁴² This seven minute YouTube video by Rosie Redfield, professor at the University of British Columbia, is an example of how pioneers are taking initiative to record their own video teaching. She explains how she records her video teaching in her office, including what software is used, the microphone and touch pad, and how to set up the lighting. This set-up gives her direct control of the recording process, and enables the experience to be

³⁵ <http://blog.han.nl/onlineeducation/weblectures-opnamen-presentations2go/>

³⁶ <http://video.han.nl/p2gplayer/Player.aspx?id=9ALHL>

³⁷ <https://www.weblectures.hu.nl/P2G/cataloguepage.aspx?type=most>

³⁸ <http://video.mit.edu/>

³⁹ <http://www.umcutrecht.nl/onderwijs/docentenopleiders/Colleges-registreren/tipsopnemenweblecture.htm>

⁴⁰ <http://icto.uva.nl/video>

⁴¹ <https://sites.google.com/a/ond.vu.nl/podcasting-en-weblectures/hoe>

⁴² <http://www.youtube.com/watch?v=0q-JKBEwNy4>

informal, as if a student walked into her office for a chat. There is not the pressure associated with a recording studio with expert technicians and the end product has a more improvised and relaxed feel.

JISC Digital Media JISC is an organisation in the UK with the mission ‘to support the UK’s education sector in achieving greater digitisation and use of digital media resources (still images, moving images and sound resources) for teaching, learning and research.’ JISC provides online resources and their comprehensive guide⁴³ on this subject has 11 sections covering many aspects of videoing lectures, from tripod selection to copyright laws.

TeacherTrainingVideos.com⁴⁴ On this web site (which is an individual initiative from one teacher) the subject of video teaching is clearly presented. Through Screencast and web lectures, the practicalities of video teaching are illustrated, demonstrated and explained.

Summary of current support available for lecturers moving to video teaching

There is a growing source of information available online, in many different locations. Some is in an instructional web lecture format while some is in pages of text with images on web pages. This information varies in the ease of access to non-technical experts, some being presented in user friendly formats and others less so. Instructional videos in the form of web lectures demonstrate the process of developing video teaching skills. These cover important points at an introductory level, moving to a more in-depth level. Mention of media training on a couple of sites indicates that some Higher Educational organisations are serious about teaching staff learning to teach via video, and are allocating resources in the form of training and support materials. Navigating through all of the information and finding the relevant information at the appropriate level, is time consuming and not always straight forward. There is a need for a clear set of support materials on this subject that are easily accessible, building from total beginner to advanced user.

2.7 Summary of chapter 2

This chapter has outlined certain educational theories and models which help to explain the impact video can have on teaching and learning. Through a review of the literature, this chapter has examined the context of video in education. The first two sub questions have been answered and the qualities of video teaching and the functions of video teaching have been described. A selection of support formats, and examples of support, that currently exist in Higher Education and other organisations gives insight into different approaches to this subject. The contemporary nature of the research subject means that much of the information collected here is based upon information gathered on websites and newsletters and online discussions. The relevance and importance of this topic is indicated by its prevalence as a topic in Universities and Hogescholen, both within The Netherlands, and abroad. The information from this chapter has resulted in a list of criteria that are presented in the results section and are used to develop the support prototype.

⁴³ <http://www.jiscdigitalmedia.ac.uk/infokit/video-creation>

⁴⁴ <http://www.teachertrainingvideos.com/presentme/index.html>

3 Methodology

3.1 Introduction

This chapter explains why which research approach has been used and in what way. The methodology for each of the research instruments is explained, along with an explanation of the procedures followed to collect and then process the data. An overview is provided to show which methods were used to answer which sub questions and with which specific stakeholders. The chapter concludes by explaining the approach to ethical questions encountered during the research, what approaches were taken, and how this was communicated to stakeholders during the research process. The research was conducted in English and Dutch, and the researcher's approach to minimising discrepancies between the two languages is explained.

3.2 Design Research

Design research is an approach which has certain characteristics. Through design research, a set of criteria are established for a something that is to be designed. These are then tested based on different quality criteria. Through an iterative process of prototyping, the validity and practical usefulness of the prototype is examined further. Nieveen (2007, p.91) defines educational design research as 'the systematic study of analysing, designing and evaluating educational interventions in order to solve complex educational problems for which no ready-made solutions are available and to gain insight in key design principles'. Design research has a cyclical nature developing prototypes and evaluating iterations. Joosten (2013) gives an overview of the literature on design research and presents definitions and characteristics of this research approach. Design research has its origins in technical science. The definitions are based on two aspects; solving a practical problem and adding to knowledge about possible solutions (Van den Akker, 1999). Design research can be used as a tool for innovating strategy within education (Kessels & Verdonschot, 2011).

The design research approach dictates that sub questions are arranged by pre-research phase and prototype phase (Joosten, 2013; Van den Akker, Bannan, Kelly, Nieveen, & Plomp, 2010; Van den Akker, 1999). Nieveen (in Van den Akker et al., 2010) provides an overview of formative evaluation methods to use based upon which quality criterion, and at which stage of the research (table 5). During the first three design stages (design specifications, global design and partly detailed intervention), screening and expert appraisal can be used to assess the relevance, consistency and practicality of the prototype. The table gives guidelines on which formative evaluation method to select depending on the criterion. 'Relevance' is also known as content validity and refers to the need for the intervention and to what extent the design is based on current knowledge. 'Consistency' is also known as construct validity and refers to the degree to which the intervention is logically designed. 'Expected Practicality' is the degree to which the intervention is expected to be usable in its design environment. The 'Actual Practicality' is the degree to which the intervention is usable in the settings for which it has been designed and developed. 'Expected Effectiveness' is the degree to which using the intervention is expected to result in the intended outcome. 'Actual Effectiveness' is whether using the intervention actually results in the intended outcome (Nieveen in Jan Van den Akker et al., 2010). Based on the guidelines above, appropriate formative assessment formats can be used to evaluate the different criterion of the intervention.

Table 5 Table for selecting formative evaluation methods(Nieveen in Van den Akker et al., 2010)

Design stage Quality criterion		Design specifications	Global design	Partly detailed intervention	Complete intervention	Implemented intervention
Relevance		- Screening - Expert appraisal	- Screening - Expert appraisal	- Screening - Expert appraisal	- Screening - Expert appraisal	
Consistency		- Screening - Expert appraisal	- Screening - Expert appraisal	- Screening - Expert appraisal	- Screening - Expert appraisal	
Practicality	Expected	- Screening - Expert appraisal	- Screening - Expert appraisal	- Expert appraisal - Walkthrough		
	Actual			- Micro-evaluation	- Micro-evaluation - Try-out	- Survey (Quasi) experiment, Case-study
Effectiveness	Expected	- Screening - Focus group	- Screening - Focus group	- Expert appraisal		
	Actual			- Micro-evaluation	- Micro-evaluation - Try-out	- Survey (Quasi) experiment, Case-study

3.3 Research questions and research instruments

3.3.1 Main research question and sub questions

Main Research Question

What are the characteristics of support that assists lecturers in the tourism team Inholland Diemen in developing video teaching?

Sub Questions, methodology and stakeholders

It was not realistic or relevant within the scope of the research to interview all of the stakeholders identified in chapter 1. An overview of the number of stakeholders interviewed, and their respective level (Macro, Meso, Micro, Nano based on Thijs & Van den Akker, 2009) is outlined below. In total, 23 individuals took part in the interviews: 17 individual in-depth interviews, one focus group of four tourism lecturers and one group telephone interview with three lecturers (appendix L provides an overview).

Table 6 presents an overview of which methodology was used for which research question. The eight sub questions are divided over the three research phases (development, prototype and evaluation). In the table, the nine different stakeholder groups involved in the research are listed (from A to I) and the count per stakeholder group is indicated. Under each research instrument, the stakeholder groups that were questioned are linked to the relevant sub questions.

Table 6 Overview of research questions, methodology and stakeholders

Research phase	Question number	Research question	Methodology					
			Literature review	Questionnaire	In-depth interview	Focus group	Screening	Expert appraisal
Pre research phase development specifications	Main Question	What are the characteristics of support that assists lecturers in the tourism team Inholland Diemen in developing video teaching?	X	D, G	A-I	E, G	D, G	B, C, D, F, G, H
	1	What are the qualities of 'video teaching' as described by the literature?	X					
	2	What different functions can 'video teaching' have within the didactic process?	X					
	3	What is the current level of experience of 'video teaching' in the tourism team?		D, G	D, G	G		
	4	What support does the tourism team need to develop their 'video teaching' skills?	X	D, G	A-I	G		
	5	What opportunities are there in the current tourism course to introduce video teaching?			D, F, G	E, G		
Prototype phase	6	What are the characteristics of a support prototype that assists the tourism team to develop video teaching?			A-I	E, G		
Evaluation phase	7	What is the expected practicality of the prototype?					D, G	B, C, D, F, G, H
	8	What is the expected effectiveness of the prototype?					D, G	
Stakeholders interviewed (count)								
Meso	A	Member of Inholland Board of Directors (CVB) (1)						
Meso	B	E-learning researcher Inholland, Web Lecture Expert (1)						
Meso	C	Video Recording Technician, Inholland web lecture department (1)						
Micro	D	Tourism Programme Manager, Inholland TM/HTRO (1)						
Micro	E	Tourism Programme Curriculum Committee, Inholland TM/HTRO (3)						
Micro	F	Education and Didactic Expert, Inholland (1)						
Micro	G	Tourism Management lecturers, Inholland TM/HTRO team (15)						
Micro	H	Video Teaching Practitioners, Inholland lecturers (not tourism) (2)						
Nano	I	Student Web Lecture Researcher, Inholland student (not tourism) (1)						

This research followed the approach of educational design research which first defines the criteria for a prototype, and then through expert feedback on specific aspects of that prototype in the form of iterative cycles, modifies and improves the prototype (Van den Akker et al., 2010). The research uses the method of flexible design in which ‘good’ flexible design has multiple qualitative data collection techniques, multiple realities are presented, it is based on existing research traditions, it is focused on a single problem in one context, where data has been collected rigorously and analysed carefully to multiple levels of abstraction and where the writing style is intended to be clear and enable the reader to have a sense of ‘being there’ (Robson, 2011, p. 132). A part of the research involved collecting quantitative data within the research population in the form of a closed questionnaire which means this research takes a mixed method approach.

Complexities in the data collection process and ethical considerations are outlined below including the efforts made to minimise any researcher bias. Throughout the research process, a research log was kept by the researcher (from February to July 2014). This details important events that occurred during the research process, changes caused by circumstances and practical difficulties that were encountered, reflections on what went well or not, and ideas and suggestions. The research log served as a basis for the description of the methodology below.

Structure of main question and choice of sub questions

The main question examines the concept of ‘support’ for lecturers. This term ‘support’ was specifically left loosely defined in order to allow the lecturers to provide their own perspectives in order that an answer could emerge from the data. During the course of the research the term ‘video teaching’ was defined more clearly during the pre-research phase. Once the data was collected, it became possible to focus in on a specific form of video teaching that could be provided with a specific type of support. The sub questions are in three stages; the pre-research phase in which the research criteria are defined, the prototype phase in which the first prototype is defined, and the evaluation phase

An explanation of the research methods used is given below, linking each research method to the specific sub questions in which it is employed. The methodology for the literature review has already been covered in chapter 2

3.3.2 Literature review

(Sub questions 1 and 2)

A literature review was conducted as part of the theoretical framework as outlined in Chapter 2. The sub questions 1 and 2 were answered. The methodology for the literature review and the manner of data processing is covered in chapter 2.

3.3.3 Questionnaire

(Sub questions 3 and 4)

A questionnaire (see appendix A) was used to compile an inventory of existing video teaching usage within the tourism team. The literature research in chapter 2 provided definitions of the different types of video teaching and these were used as a base from which to formulate the questionnaire. As of February 2014, there were 25 lecturers in the tourism team (including the team leader and the current researcher). The researcher is not included in the total which means that the number of members in the team who could complete the questionnaire was 24. A total of 22 questionnaires were completed from the team (13 hard copy, 9 via email) with two not returned. This can be considered a representative sample. The method of a questionnaire was used because it is a quick and efficient manner to collect data to closed questions (e.g., How

many years have you been teaching? Which option below best describes your level of video teaching?) and because it helped to answer the evaluation questions (Robson, 2004). A number of open questions enabled room for additional points to be raised by the participants. The data collected provided information to create a benchmark of video usage within the team. Guidelines to prevent researcher bias were incorporated into the process (Robson, 2011; Seidman, 2006). The questionnaire enabled the current level of experience of the team using video in their teaching to be established. The questionnaire collected information on how often lecturers have been using video in their teaching and ask them to define their level of expertise. The questionnaire did not focus on attitudes, beliefs or concerns (which was collected in sub question 4 through in-depth interviews).

The questionnaire was a self-completion questionnaire (Robson, 2011) with open and closed questions. This list of closed and open questions focused on: degree of experience lecturer has in teaching through video, sorts of video usage they have experience with, degree of interest in finding out more about video teaching, openness to new technology and didactic formats, and option to indicate any other areas of interest.

The questionnaire was drafted based on established principles of structuring and making a questionnaire (Burgess, 2001; Robson, 2011; Roopa & Rani, 2012). The draft was sent to fellow researchers and to lecturers at Inholland outside the research group including external teaching contacts of the researcher. It was pre-tested on five individuals outside the research group to get feedback on the wording, formation of questions, order and logic of the questionnaire. This feedback was then included in the final version.

An explanation of the research was given to the tourism team, during the core team meeting in February, 2014. The research protocol and ethical considerations of the research were explained (e.g. regarding the need to ask the respondent to give their name in order to form focus groups based on level of expertise). Respondents were informed they could leave data blank if they so wished (e.g., age) and were under no obligation to complete the questionnaire. The questionnaire was then handed out (hard-copy) and all 12 staff attending the meeting had time to complete and return the questionnaire. This personal approach gave the researcher the chance to clarify questions that respondents had about the research and questionnaire and generated a high return rate (Robson, 2011). Subsequently, the researcher emailed a copy of the questionnaire and put a hard copy in the mail box of the remaining 12 lecturers who were not in attendance at the meeting (See appendix D). A follow-up reminder mailing was sent one week after the first distribution. In total, 22 of the 24 lecturers completed and returned questionnaires (92% return rate). The results were transferred to an excel spread sheet, tabulated, processed and summarised. Each question on the questionnaire was given a specific number. The returned questionnaires were numbered in order that data entered could be tracked back to a specific respondent. Once the data was entered, the respondent numbers were converted to letters at random (A-Y) so that specific respondents could be referred to anonymously at a later stage.

3.3.4 Inventory

(Sub question 3)

An inventory was made of the video teaching made by lecturers on the tourism team Diemen as of April 2014. This was to establish how many teachers in the team had already made a web lecture and to what extent it concurred with previous findings that teachers needed additional

support to overcome fears (Germany, 2012; Waters, 2011). The Inholland Mediasite⁴⁵ hosts all of the web lectures recorded by Inholland. A search was made for web lectures recorded by lecturers on the tourism team Diemen under the specific section for the tourism course (HTRO and TM). This archive was analysed, and a count was made of how many web lectures had been made by staff in the tourism team Diemen, and on what subject. The web lectures made by the current researcher were excluded from the totals since they significantly skew the results. In addition, one self-made web lecture posted to YouTube was forwarded by a tourism lecturer to the researcher and is included in the results.

3.3.5 Focus Group

(Sub questions 3–6)

The format of a focus group was used to gather information for sub question 3 to 6. A focus group is considered an efficient way to collect data from a number of people at the same time, relatively low cost and because group dynamics can often help to focus on the most important topics (Rabiee, 2004; Robson, 2004, 2011). Focus groups also have disadvantages, such as the limited number of questions that can be asked, expertise required to facilitate the group and issues of confidentiality (Robson, 2011) but it is still considered an appropriate format in this context. Boeije (2012) refers to a focus group as a semi-structured or half-structured interview and explains the role of the interviewer in deciding whether an answer is sufficient, or if deeper questioning is needed to get a more complete answer.

A focus group format was considered an appropriate method for data collection for this sub question. Practical tips from Krueger (2002) were used for setting up the focus group, along with concept introductions and structures and research protocol. Krueger and Casey (as quoted in Robson, 2011) express concerns about compiling groups with ‘people who know each other or work closely together’ due to pre-existing dynamics that may exist within the group. All those who were questioned for the research were referred to as participants, based on arguments provided by Seidman (2006). The interview protocol (see appendix C) was designed to address this issue by stressing confidentiality and the voluntary nature of participation. Guidelines were developed to ensure that all participants in the group interview were given an opportunity to express their ideas fully. Data collected from the team in sub question 3 regarding the current level of video teaching was evaluated and used to design question topics for the group interview.

The questions for the focus group were firmly grounded in the TPACK model with questions that addressed each of the different types of knowledge involved (Mishra & Koehler, 2006). The differences between face-to-face teaching and video teaching as outlined by Beaudoin (2014) was used as a reference when guiding the discussion. The focus group questions were checked with two fellow researchers for feedback on the question design.

Due to the size of the tourism team (24 lecturers), combined with a very high work load and the limited time available for lecturers to meet, it proved extremely difficult to schedule more than a couple of lecturers together at the same time. Purposeful sampling of the group was planned, based on selecting a variety of lecturers from within the group based on experience, age and technological level. Robson (2011) examines the discussion by Morgan that a focus group need to be composed of 6-10 participants. However, attaining even that number within the tourism team was not possible. The team were invited by email (see appendix B) to participate and were

⁴⁵ <https://Mediasite.inholland.nl/Mediasite/Catalog/catalogs/default>

given the incentive of a lunch or breakfast. In the end, one focus group was compiled of four lecturers for the breakfast meeting, the remainder being invited for individual interviews.

The tourism team lecturer room at the Inholland campus in Diemen was selected as a comfortable, relaxing location with good acoustics, and arranged for breakfast (see photo below). In total three lecturers participated for the whole group interview and a fourth joined half way through. There was a positive and serious atmosphere in the group.



Figure 7 *March 2014 group interview location, Inholland Diemen*

The research protocol was explained to the group along with an explanation of the code of conduct being followed by the researcher and that the group interview would be recorded. The research protocol, information provided and the research questions are outlined in appendix C.

The TPACK model was briefly outlined, and participants were given sheets of paper with questions regarding technology, pedagogy and content knowledge. They spent about 10 minutes in silence, writing out their answers on the sheets provided. The sheets were then collected and discussed by each lecturer with the group. There was a lively discussion and the group interview concluded. The recording was then listened to and transcribed and a copy sent to each participant in the group for a member check before the transcript was finalized.

3.3.6 Group interview

(Sub question 5)

The format of the group interview followed a different structure to that of the focus group. The Tourism Management Curriculum Committee (CuCo) is composed of three members and their role is to monitor the four year tourism management curriculum. Because the team are located at three different locations the group interview took place via the Inholland Lync on-line web conferencing system. A draft list of questions for the CuCo was compiled based on key themes in the research. This draft was circulated to fellow researchers in order to get feedback on the order and structure of the questions and this feedback was included in the final list of questions (see appendix F). Two weeks before the interview, these questions were emailed to the CuCo members. These were answered in writing by one member, and forwarded to the other two members for review and further comment and returned to the researcher. These draft answers were then used as the basis for the detailed discussion during the actual interview.

Two members of the CuCo communicated on line via the web conferencing system. One member was in the same location as the interviewer. The interview protocol was explained to the three members. It was explained that the language of the interview would be predominantly English, and any Dutch communication would be translated into English for consistency, since the final report was in English. The interview was recorded, transcribed and Dutch sections translated and sent for a member check on the translation.

3.3.7 Semi-structured in-depth interviews

(Sub questions 3–6)

Lecturers in the tourism team that could not attend the focus group, were invited to schedule interviews individually. The format of a semi-structured interview was used because it is flexible and adaptable and gives the interviewer the opportunity for observation and the chance to explore specific areas of interest in more detail (Robson, 2011). The focus group questions were adapted for the semi-structured in-depth interviews. The questions for the semi-structured interviews were based upon much of the theory in chapter 2 including teacher apprehensions about the amount of time needed to prepare the lectures (Stover & Veres, 2013) and challenges encountered when teaching through the traditional lecture format (Day, 2008; Laurillard, 2002).

Each participant received a hard copy of the research protocol at the beginning of the interview, and it was explained. Interviews lasted from 40 minutes to 1 hour and 15 minutes, with most being around 50 minutes in length. Two of the interviews were conducted by telephone (which was recorded), one interview was conducted by Skype and one via Lync, the internal Inholland tele-conferencing system for the Curriculum Committee group interview.

In total, 22 individuals from within Inholland participated in the interview process (some being interviewed twice). This involved 4 individuals in the focus group interview, 3 in the group telephone interview and 16 individual interviews (in person or by phone). Note that two individuals participated in both group and individual interviews due to the specific nature of their expertise and its relevance for the research. Of the 22 individuals interviewed for the research 1 was a member of the Inholland board of directors, 1 was an Inholland student who had recently graduated on the subject of video teaching and 6 were other Inholland staff. The final 13 were members of the tourism team Diemen. This is equivalent to 59% of the team participating in the qualitative research.

All interviews were recorded by tape recorder, transcribed, and then a copy of the transcript was sent to the participant. Since the interview had been recorded, it was not necessary to perform a member check. However, it was decided that as part of the effort to generate support for the research subject, each participant would receive a copy of their interview so that they could read through and reflect on what had been discussed. In most cases, the language of the interview was in English which was not the native language of any of the participants. In two of the interviews, the participants spoke in Dutch which was later translated, and the members checked and confirmed that the translation was accurate.

3.3.8 Brainstorming cards

(sub question 4)

During both the focus group and the in-depth interviews, participants were given a set of eleven ‘brainstorming cards’ with suggestions and explanations of possible support formats (see appendix C). These eleven suggestions were based on the data collected during the literature review and to allow the lecturers (in this case the students learning about video teaching) to have input to learn based on their individual learning style and preferences (Kolb, 1984; Schwartz, 2013). The cards were printed and cut-out so they could be used as inspiration to stimulate the discussion of the preference for certain types of support. Participants were asked to think through the format for support information that would be most helpful for them, and to arrange and prioritise the cards on the table, placing those they thought ‘most important’ towards the top, those ‘less important’ to the bottom, and to leave out any cards that did not apply. One card was left blank with the word ‘other’ in case there were additional ideas. This was used as a brainstorming activity during the interview process to generate interest in the topic and to prompt discussion on the specific topic (Robson, 2011).

11 different ‘types of support’ were mentioned to the participants from the tourism team who were interviewed. Seven of the lecturers chose to arrange and prioritise the cards when discussing this point, arranging and prioritising them based on their individual preference. Three of the lecturers simply named a couple as being important and did not arrange the cards. Two lecturers said they could not answer this question. One lecturer said they needed more information about the subject before arranging the cards. When the lecturer had arranged the cards, photographs of the completed arrangement was made.

The data collected from the eleven brainstorm cards was analysed as follows. The number of times each format was mentioned, and the degree of priority it was given was then weighted from 1-11 (11 being most important to 1 being the least important). These weighted counts were then tabulated to give an indication of which types of formats were mentioned the most, and how important they were considered. This was combined with results from the interviews to give an indication within the team for their preference for different types of support.

This was then collected for all interviewees in an excel table, to give an overview of which types of support were mentioned frequently as being of most use. This information was then taken into consideration as part of the process to decide which form of support to build as the prototype of this research. Once the research had started, 2 of the original team left Inholland. This meant that the number of available lecturers plus one team manager was 22. In total, 13 members of the team (12 staff and 1 team manager) provided data regarding their preference for the format of the support (equivalent to 54% of the team).

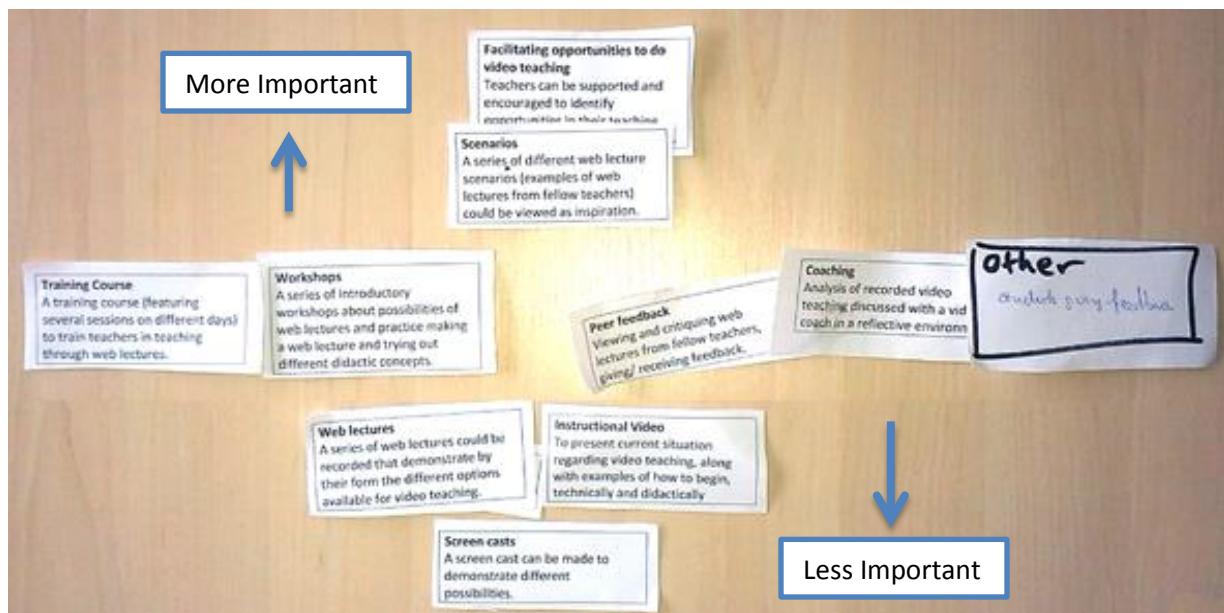


Figure 8 Example of arrangement of the cards for preferred support (participant U)

3.3.9 Compilation of criteria and instructional design of prototype (Sub question 6)

The criteria for prototype 1 (see appendix N) were determined based on the data collected from the tourism lecturers and other stakeholders that indicated their preference for the type of support and the preferred content. It was outside the scope of the current research to make support for all three forms of video teaching explored. Based on the preferences of the lecturers

as indicated in the data collected, the choice was made to develop a small-scale workshop for lecturers on how to make web lectures, supported by a series of micro web lectures to be viewed in advance by workshop participants.

While the data above was being collected and processed during the first five sub questions, it was also being analysed and interpreted. This led to a number of criteria which were used to build prototype 1. Results from the interviews with the tourism team indicated formats to be developed further. These were outlined based on the selected didactic model and presented to experts. In the second stage of the research, design guidelines are outlined and through a series of formative evaluations, the prototype is evaluated based on its specific attributes (Van den Akker et al., 2010). The methodology for evaluating the prototype is screening, a focus group and expert appraisal. These methods are outlined below. For the screening, expert appraisal and focus group, the interviews were recorded and then transcribed. Analysis involved highlighting quotations that answered the specific questions and contained feedback on the prototype. This feedback was then grouped into key feedback suggestions. The suggestions were then examined and incorporated into the second version of the prototype.

The methodology for answering sub question 6 was at two levels. Firstly, the compilation of a set of criteria which was based on the findings of the first five sub questions including data collected during the in depth interviews and the focus group as outlined in Van den Akker et al. (2010). Secondly, using those criteria to build a prototype for the support based on sound instructional design principles. The compilation of the table of criteria was made as follows. The format for the support was identified from the answer to sub question 4; a workshop with supporting web lectures as preparation. The criteria were compiled by carefully re-reading through the key points identified in the literature review, the interview transcripts, and reading through the codes and themes and selecting key returning issues. These subjects were then compiled into a list of criteria at two levels, those for the format of the support, and those for the content of the support. The criteria were listed by most important first.

Three instruments were used to convert the criteria into prototype 1. Firstly the curriculum spider web (Thijs & Van den Akker, 2009) outlines ten elements to consider during curriculum design and these were outlined in order to put the design into context (appendix N). Specifications for the curriculum are defined by answering ten on; vision, goals, content, learning activities, role of the teacher, material and source documentation, group composition, location, time and assessment. Secondly, constructive alignment principles were used to ensure there was a direct correlation between the goals of the workshop, what is taught in the workshop, and what is assessed in the workshop. Finally, the IBL designer (see appendix M) was selected based on its simple structure that provides three steps to identify the aspects of a curriculum and to develop an educational course through interaction with stakeholders. Step 1 establishes goals, conditions and contextual factors. Step 2 outlines a first sketch of the course structure. Step 3 outlines procedures for delivering the workshop, adequate agreements regarding communication with support. For each step the questions were answered and used to form the basis of prototype 1. Once these elements were described, they were compiled into the prototype 1 which was then presented for critical feedback in sub question 7 and sub question 8. This feedback was then incorporated into the updated set of criteria for the design specifications for prototype 2 (see appendix O). Criteria for the second prototype were specified in more detail (by the team manager, lecturers and experts) and the type of criteria were expanded to include format, micro lecture content and workshop content for the three suggested workshops. Prototype 1 was in a similar format as that of prototype 2, a text description of the video teaching training and an outline of the preparatory web lecture. In this

research document a choice was made to present only the last prototype, prototype 2 in the results section.

3.3.10 Screening

(Sub questions 7 and 8)

Screening involves members of the design team checking the prototype against a checklist of important characteristics or components. In the current case, the design team was limited to the current researcher. The prototype was built directly from the set of design criteria as emerged from the interviews and literature research. Feedback on the draft prototype regarding expected practicality was received from 9 individuals; three web lecture experts (technician, didactic expert and member of the lectureship eLearning), the tourism team manager, and five members of the tourism team. Future iterations can be checked against the original design criteria. According to Nieveen (in Van den Akker et al., 2010) the expected effectiveness of the prototype should be assessed through a focus group. Due to scheduling restrictions imposed by the research schedule, and the timing of this part of the research process which occurred during the final exam period of the school year, it was not possible to compile a focus group of lecturers. The nine individuals identified above gave feedback on the global design of the prototype and its expected effectiveness. Processing the qualitative data followed the same process as outlined above for the interviews. This feedback was then used to make adjustments to the structure, format and content of the prototype based on updated criteria.

3.3.11 Expert appraisal

(Sub question 7)

Expert appraisal is when a group of experts such as subject matter experts, educational experts, or specialist teachers, review the prototype based on a number of questions that are designed to evaluate the expected effectiveness of the prototype. Three experts were asked to comment on the expected effectiveness of the prototype. In addition, five members of the tourism and the team manager were interviewed individually to comment on this. Three of those team members had not yet had a chance to be interviewed for the research and this was an opportunity to gain extra involvement and input from other members of the team. The format for these interviews followed the same process as outlined above for the in-depth interviews. However, they were substantially shorter in length than the initial interviews, being between 10-15 minutes. In one case, two lecturers were interviewed at the same time. Data collected during the expert appraisal was then incorporated into the next version of the criteria and the prototype.

3.4 Qualitative data analysis

The research was designed to incorporate adequate time to ensure a systematic and accurate processing of the data. As advised by Robson (2011), the analysis of the data was considered in the design phase of the research. Once the interviews were transcribed and member checked, the entire text was placed into one ‘master document’ of approximately 65,000 words. The processing of the qualitative data followed the guidelines outlined in Seidman (2006), avoiding any in-depth analysis of the interviews until they had all been transcribed. The text was read through to get a general outline of the meaning, with six questions adapted from Boeije (2012): What is happening here? What is it about? What is the problem? What is the person trying to make clear? What terms can be applied here? What other additional meanings can this have? Rabiee's (2004) guidelines for analysing qualitative data states the analysis begins during the focus group from the moderator, ‘The process of data analysis begins during the data collection, by skilfully facilitating the discussion and generating rich data from the interview, complementing them with the observational notes and typing the recorded information’ (p. 66

656). Following this, Rabiee advises familiarisation with the data, listening to the tapes, reading through the transcripts several times and comparing with the observational notes to understand the whole interview before going into detailed analysis. Then defining key themes that emerged, key phrases and collecting relevant quotations. Finally, Rabiee (based on Kreuger), advises considering actual words and meaning, context, frequency and extensiveness of comments, intensity of comments, internal consistency, specificity of comments and big ideas. These points were used as guidelines during the open coding process (Robson, 2011).

Open and axial coding

Boeije (2012) discusses the complexity of processing and interpreting data which outlines the continual alternation between getting results from the data and returning to the data with those results, to get further results. Sections of text in the ‘master document’ that were interesting or seemed relevant were colour coded (see appendix H) and collected by axial coding into separate documents. This resulted in more than 200 codes emerging from the open coding process. Two transcribed interviews were checked for coding by an individual not related to the research process and not familiar with their subject. The individual was asked to read the interview and to identify and summarise main themes. A copy of a summary of one of the interviews is included in appendix I. Each code was given a number and name, and the TPACK model was used to support the development of a coding paradigm (Namkung, Shin, & Yang, 2007; Robson, 2011). Each theme was linked to one of the eight knowledge categories in the TPACK model: Technological, Pedagogical, Content, TP, PC, TC, TPC, and finally Organisational/Context. These codes were initially axially coded into 21 themes, or central phenomena (Robson, 2011). In the case that there were opposites different aspects of one theme, the codes were split into pairs (pair 1 or pair 2). A draft of the first round of pairing of codes within themes is presented in appendix J. The text of each theme (only the respondent text was included, interviewer text was removed from the file) was then compiled into 21 separate word clouds⁴⁶ (see appendix K) which highlighted the 50 most frequently occurring words per theme. This enabled large amount of text to be sorted, distilled and presented in a visual manner to assist with coding and interpretation.

Selective Coding

Based on the word cloud and feedback from the two individuals, the set of themes and codes were re-examined and selectively coded (combining, simplifying and rearranging the categories and finding connections between them) which reduced the number of themes from 21 to 7. Each of these themes was then described with a proposition, a short explanation of the key elements of the theme (Robson, 2011) and supported by illustrative respondent quotations.

3.5 Ethical considerations

The Dutch association of Hogescholen (*Vereniging Hogescholen*) established protocol guidelines for research (HBO Raad, 2007). Andriessen, Onstenk, Delnooz, Smeijsters, & Peij (2010) provide a code of conduct for research at the HBO level which was adhered to during the research process. This code of conduct includes five general areas of focus for conducting research within HBO; professional/social relevance, respectful, careful, honourable, and accountable for choices and conduct. These five areas were integrated into the research plan. Steps outlined by Fullan (2007) were considered during the research process in order to ensure that ethical issues were taken into account. These included ethical guidelines, ethical issues, ensuring researcher safety

⁴⁶ www.wordle.net

and risk, general ethical responsibilities, and the politics of real world research. The ethical and political issues discussed by Robson (2011) were also incorporated into the research process including addressing ethical codes and guidelines and questionable practices which to be avoided.

The author of this research is one of the lecturers on the tourism management team. This raises ethical questions regarding neutrality and impartiality of the research (Robson, 2004; Seidman, 2006). Keeping the two roles of researcher and actor separate is complicated and can lead to a tension within the research process (Andriessen, 2014). This was taken into consideration during the design of the research and processes to strive for valid, reliable and unbiased research. It was not possible to allocate moderators or note takers during the focus groups, which is one way to reduce researcher bias and to manage the potential political situation carefully and sensitively. The three ethical issues identified by Fransen (2013b) permission, privacy and risk versus return, and the four issues related to standards: practicality, feasibility, care/integrity, and accuracy of conclusions were considered as part of the research process. Nieven (2007) warns that the researcher may become too attached to their prototype which could lead to a less objective view toward problems and comments from the respondents' which was also taken into consideration as part of the research process.

A clear explanation of the interview process, including anonymity of the respondents and member check was presented in writing and discussed at the start of every interview (see appendix C). This was to ensure that participants were clear as to what they were consenting to (adapted from Robson, 2011). During each interview it was made clear that the participant understands that they have had a chance to ask the researcher questions, that they are participating voluntarily and can withdraw with no consequences at any time in the process, that the data gathered may be used in the final report/presentation and that their name will not be used in the final report to ensure their anonymity. In all cases, a member check was made where a transcription of the interview/focus group was sent to the participant(s) with the request to approve the transcript or make any adjustments. All but one interview was conducted in English (two participants answered in Dutch, which was translated and member checked).

Minimising researcher bias

In order to minimise risk of researcher bias in data interpretation, copies of two transcribed interviews were each sent to two individuals to examine using the six questions outlined by Boeije (2012). This check confirmed that the researcher's analysis was in line with other interpretations of the text indicating that the coding process matched analysis by other individuals not directly involved in either the research, or the research subject (see appendix I for an example).

English and Dutch

Two languages were involved in the research, Dutch and English. The research findings are presented in English and yet for the majority of the participants, Dutch is their native language. To ensure that any potential language misunderstandings were minimised during the research process, guidelines based on Seidman (2006), concerning linguistic differences and finding the right words in English, were taken into consideration in the transcription and translation process. Each participant being interviewed was given the choice to answer in Dutch or English, the majority choosing to answer in English. The researcher translated the Dutch interviews into English, and translated transcripts were sent to the participant for a member check. This confirmed the accuracy of the translation and that all important information had been correctly represented in the final translation.

3.6 Summary of chapter 3

This section has outlined the methodology of the research process, the specific stakeholders who involved in the research, their position within the organisation, and how many of them provided data for the research. The specific methodological approach has been outlined including an explanation of why the design research approach has been used, the relationship between the literature and the research instruments, why each of the research instruments has been used, and for which sub questions they have been used. The process of data analysis and interpretation has been defined and explained. Finally, certain issues that could affect the reliability and neutrality of the research have been considered, including possible researcher bias, ethical issues, and language and translation issues. Having explained the various steps taken to minimise any bias in the research, and to assure its validity, it is now possible to present the research results.

4 Results

4.1 Introduction

In this chapter the specific data collected from each research instrument is presented. A description is given of the key concepts that emerged during the data collection and how the emergence of these codes and themes were organised during this process (Robson, 2011). Data for the questionnaire is presented in the format of an overall table and individual tables for each question. Data collected from the inventory of video teaching is collected in a table. The results from the focus group, semi-structured interviews and the group interview are presented in seven themes and collated into a list of ways in which video teaching could be used within the tourism curriculum. The criteria of the prototype are presented in a table. The feedback from experts on the expected practicality and expected effectiveness is presented. This data is then incorporated into the updated version of the prototype. Finally, the second prototype is presented, which contains adjustments based on the first round of feedback.

4.2 Results of literature review

In the literature review and online search, data collected was used to answer the first two sub questions. Since the results of sub question 1 and sub question 2 were already presented in detail during the literature review in chapter 2 they are not returned to here.

4.3 Results of the questionnaire

The table below presents an overview of all of the data collected by the questionnaire on video usage by lecturers of the tourism team. Underneath this table, the data for each question is presented with its own table and a short explanation.

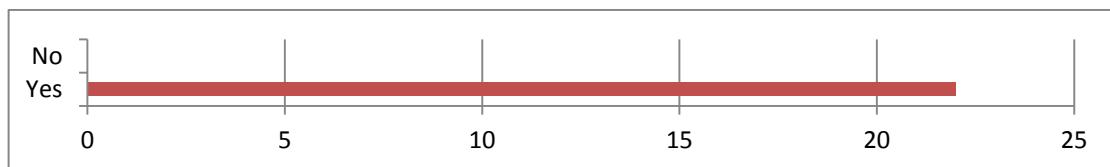
Table 7 Video use to support teaching in the tourism team

Video use to support teaching in the HTRO team						
1	Have you used video (e.g. viewing a YouTube video clip in class, referring students to a video link, recording you or your students during the class) during the last 12 months?	Yes	No			
		22	0			
		(100%)	(0%)			
Number of times last 12 months						
2	In the last 12 months, approximately how many times have you shown a video clip to your students in class (e.g. from You Tube, news clip?)	0	1-2	3-5	6+	
		0	3	7	12	
		(0%)	(14%)	(32%)	(55%)	
3	In the last 12 months, how often have you included a link to a video clip in your class material (e.g., pasting a link to a You Tube video clip into your Power Point)?	1	4	6	11	
		(5%)	(18%)	(27%)	(50%)	
		9	11	1	1	
4	In the last 12 months, how frequently have you referred students to a pre-recorded web lecture of another teacher (e.g. "Research Techniques" on Inholland Mediasite)?	(41%)	(50%)	(5%)	(5%)	
		16	6	0	0	
		(73%)	(27%)	(0%)	(0%)	
5	Using video to record your lesson when students are in the classroom, is referred to as 'Live Lecture Capture'. In the last 12 months, how many times have you recorded one of your lessons with video?	19	3	0	0	
		(86%)	(14%)	(0%)	(0%)	
6	A 'web lecture' is a pre-recorded lecture made in a studio showing the lecturer, his or her Power Point slides with commentary, made available on a server (e.g. Inholland's Mediasite). In the last 12 months, how many times have you been recorded in a web lecture?					

7	A 'Screencast' is a digital movie in which the setting is partly or wholly a computer screen, and in which audio/video narration describes the on-screen action. How many Screencasts have you made in the last 12 months?	20	0	2	0	
		(91%)	(0%)	(9%)	(0%)	
8	A 'webinar' is an interactive, live-streamed video discussion, in which participants can interact with the presenters via an on-line chat option. In the last 12 months, how many times have you participated in a Webinar?	20	2	0	0	
		(91%)	(9%)	(0%)	(0%)	
9	Please specify any other ways (not mentioned above) that you have used video in your teaching?	<ul style="list-style-type: none"> · "I use Skype for coaching students" · "Created own videos" · "Skype with trainees abroad" · "Private movie/Skype" · "Record students and show them their videos to give feedback" · "Skype", "Skype for graduation interview" 				
10	Which of the descriptions best describes your level of proficiency in using video as part of your teaching process?	beginner	novice	average	competent	expert
		6 (27%)	4 (18%)	10 (45%)	3 (14%)	1 (5%)
11	Have you ever had any training on using video in your teaching process (e.g., followed a course or workshop, on-line training programme)? If "Yes", please specify:	Yes	No			
		13 (59%)	9 (41%)			
		<ul style="list-style-type: none"> · A course on how to integrate video from You tube in power point presentation (by tourism lecturer) · Workshop how to insert links into a Power Point presentation (tourism lecturer) · I have done web lecture about case study training 2(?) years ago? · Tourism team lecturer's workshop last autumn · Tourism team lecturer 's lesson · How to include you tube videos in Power Points (Tourism team lecturer) · Workshop (Tourism team lecturer) in Nov/Dec '13 · 1 x by tourism team lecturer · Power point presentations - insert a link · Internal session at Inholland 				
12	Are you interested in learning more about using video in your teaching?	Not at all	Slightly	moderately	quite a bit	very much
		0 (0%)	2 (9%)	5 (23%)	9 (41%)	6 (27%)
13	Would you be interested in taking part in a focus group to discuss the use of video in your teaching?	1 (5%)	7 (32%)	6 (27%)	4 (18%)	4 (18%)
15	Your age	20-29	30-39	40-49	50+	
		2 (9%)	3 (14%)	11 (50%)	6 (27%)	
16	Number of years teaching?	0-5 (yrs.)	6-10 (yrs.)	11+ (yrs.)		
		5 (23%)	5 (23%)	11 (50%)		
17	Years teaching at Inholland?	6 (27%)	6 (27%)	9 (41%)		

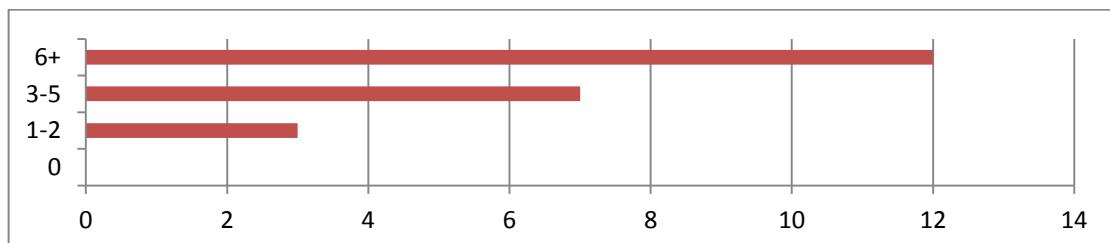
Table 7 presents how the tourism team is currently using video to support their teaching. Results for each question are explained in more detail below.

Table 8 Q1: Have you used video (e.g. viewing a YouTube video clip in class, referring students to a video link, recording you or your students during the class) during the last 12 months?



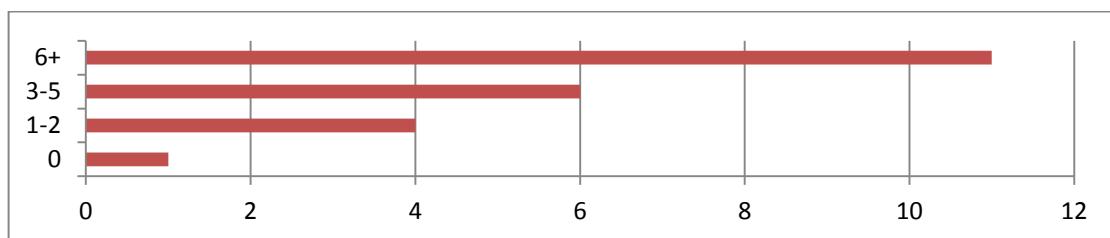
100% (all 22 respondents) confirmed they have used video in class in the last 12 months.

Table 9 Q2: In the last 12 months, approximately how many times have you shown a video clip to your students in class (e.g. from You Tube, news clip?)



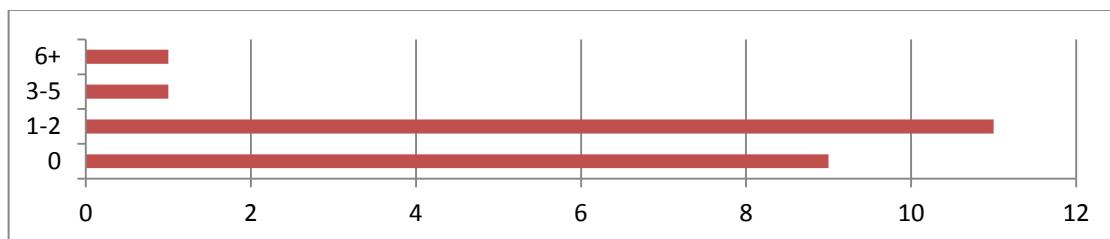
All respondents had shown a video clip in their class during the last 12 months; three (1 to 2 times), seven (3-5 times) and twelve (6 or more times).

Table 10 Q3: In the last 12 months, how often have you included a link to a video clip in your class material (e.g., pasting a link to a You Tube video clip into your Power Point)?



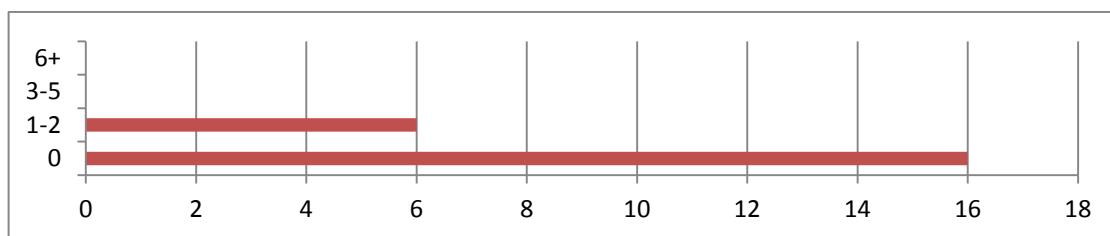
In the last 12 months, all lecturers (except 1) had included a link to a video clip in their class material, four had done this 1-2 times, six had done it 3-5 times, and eleven had done this 6 or more times.

Table 11 Q4: In the last 12 months, how frequently have you referred students to a pre-recorded web lecture of another lecturer (e.g. "Research Techniques" on Inholland Mediasite)?



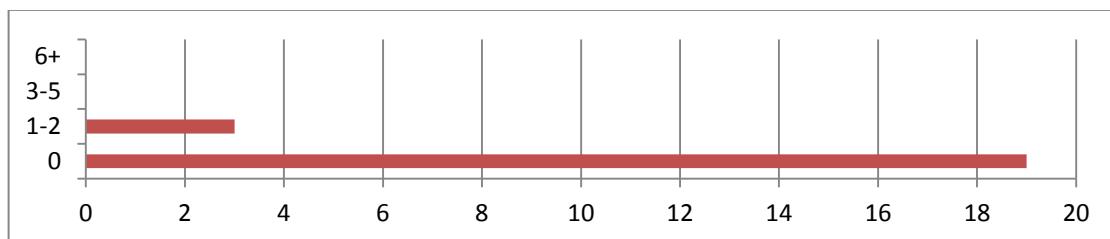
In the last 12 months, nine lecturers had not referred students to a pre-recorded web lecture, eleven had done this 1-2 times, one 3-5 times and 1 had done this 6 or more times.

Table 12 Q5: Using video to record your lesson when students are in the classroom, is referred to as 'Live Lecture Capture'. In the last 12 months, how many times have you recorded one of your lessons with video?



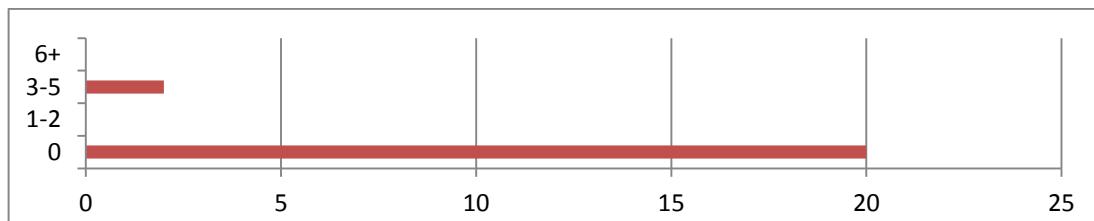
16 lecturers had not had their lesson recorded live ('Live Lecture Capture') during the previous 12 months and six lecturers had done this 1-2 times.

Table 13 Q6: A 'web lecture' is a pre-recorded lecture made in a studio showing the lecturer, his or her Power Point slides with commentary, made available on a server (e.g. Inholland's Mediasite). In the last 12 months, how many times have you been recorded in a web lecture



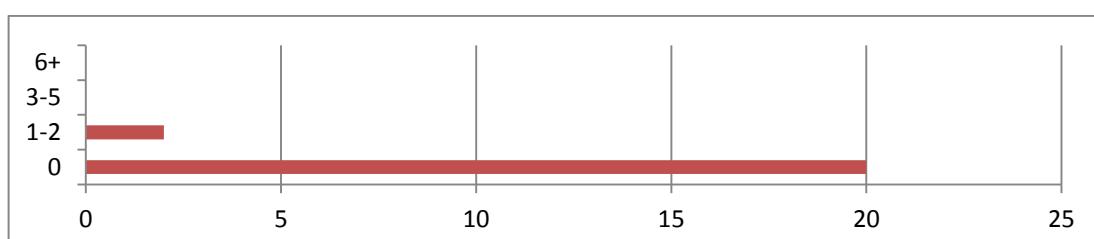
19 lecturers had no experience of making a 'web lecture' in the previous 12 months, and three had done this 1-2 times.

Table 14 Q7: A 'Screencast' is a digital movie in which the setting is partly or wholly a computer screen, and in which audio/video narration describes the on-screen action. How many Screencasts have you made in the last 12 months?



2 lecturers had made 'Screencast' 3-5 times during the previous 12 months and 20 had not done this.

Table 15 Q8: A 'webinar' is an interactive, live-streamed video discussion, in which participants can interact with the presenters via an on-line chat option. In the last 12 months, how many times have you participated in a Webinar?



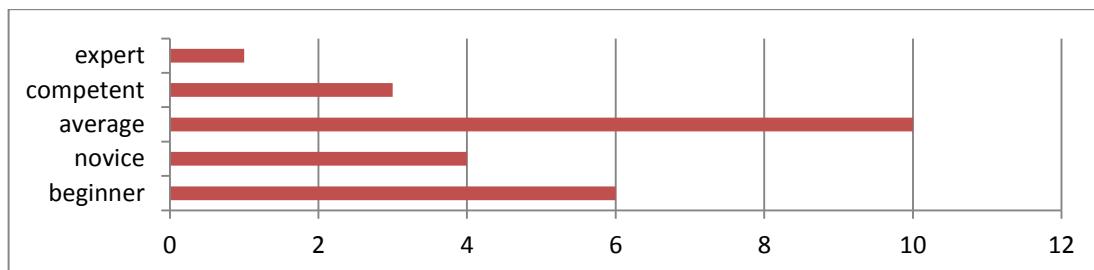
2 lecturers had followed a 'webinar' 3-5 times during the last 12 months and 20 had not done this.

Table 16 Q9: Please specify any other ways (not mentioned above) that you have used video in your teaching?

When asked to specify any other ways not yet mentioned that they had used video in their teaching, six lecturers mentioned using Skype to communicate with students, one lecturer mentioned making their own films and one mentioned recording students as part of the them feedback process.

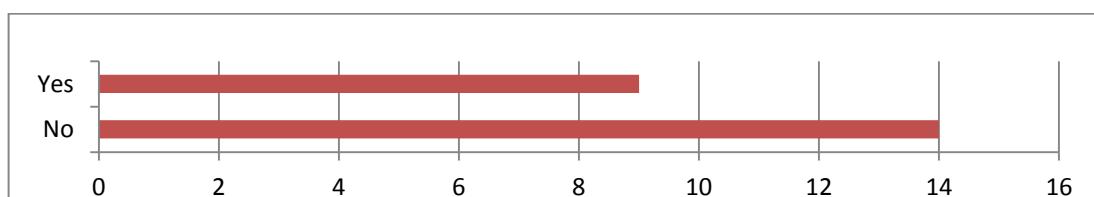
- “I use Skype for coaching students”
- “Created own videos”
- “Skype with trainees abroad”
- “Private movie/Skype”
- “Record students and show them their videos to give feedback”
- “None”
- “Skype”

Table 17 Q10: Which of the descriptions below best describes your level of proficiency in using video as part of your teaching process?



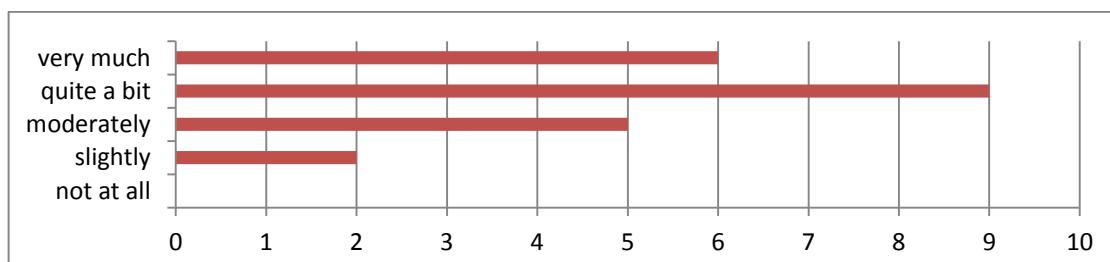
When asked to describe how they viewed their level of proficiency in using video as part of your teaching process, ten describe themselves as beginner/novice, ten as average and four as competent/expert.

Table 18 Q11: Have you ever had any training on using video in your teaching process (e.g., followed a course or workshop, on-line training programme)?



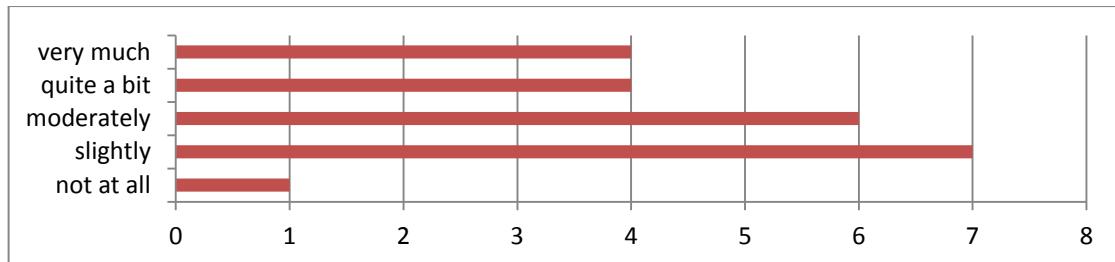
Fourteen lecturers had not had any training on using video in their teaching process, and nine had. Of those nine, all nine mentioned a recent workshop run internally on how to insert video links into a Power Point presentation. One lecturer ticked both boxes Yes and No.

Table 19 Q12: Are you interested in learning more about using video in your teaching?



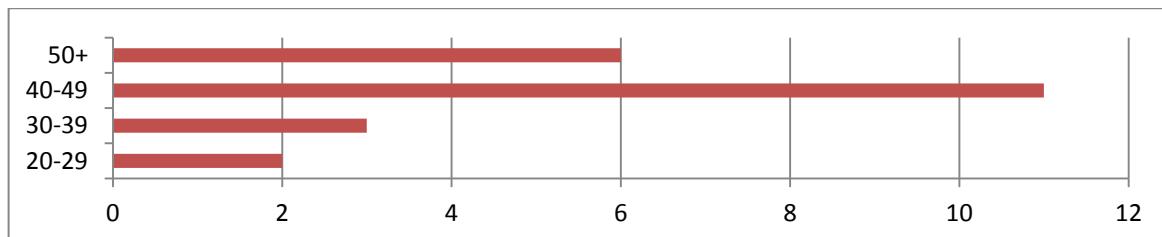
When asked if they were interested in learning more about using video in their teaching, none said they were not at all interested, seven mentioned they were slightly to moderately interested, nine said they were quite a bit interested and six said they were very interested.

Table 20 Q13: Would you be interested in taking part in a focus group to discuss video in your teaching?



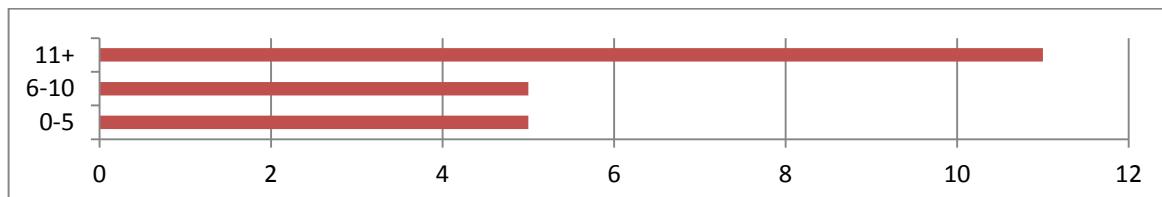
When asked if they would be interested in taking part in a focus group to discuss the use of video in their teaching, one said not at all, thirteen were slightly, to moderately interested, four were quite a bit interested and four were very much interested.

Table 21 Q15: your age in years



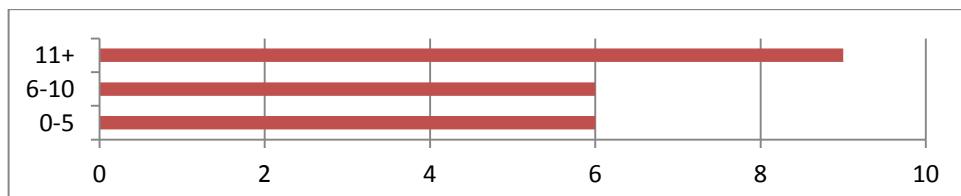
The age of the teaching staff is as follows. Two staff are aged 20-29, three staff are aged 30-39, eleven staff are aged 40-49 and six staff aged 50+.

Table 22 Q16: Number of years teaching



Five lecturers have been teaching for 0-5 years, five have been teaching 6-10 years, and eleven have been teaching 11 years or more.

Table 23 Q17: Years teaching at Inholland



Of those teaching years, six had been teaching at Inholland for less than 6 years, six had been teaching for 6-10 years and nine had been teaching at Inholland for 11 or more years.

Q18: Any other comments?

Five lecturers added comments but they were of a personal or informal nature and did not contribute anything to the research data.

Summary of research data collected by questionnaire

The tourism team is composed of a group of experienced lecturers who have been teaching for between 5 and 10+ years in the current organisation and there is a smaller group of younger and newer lecturers with less experience. Within the group there is limited experience of video teaching and most lecturers describe themselves as beginner or novice. In those cases where lecturers have done video teaching, they have done it only a few times and not recently. Usage of integrating (YouTube) video clips into the teaching is very high within the team (a reflection of the workshop that was run internally in 2013). Lecturers demonstrate some familiarity with their on-screen video image by using Skype as a communication tool with students who were abroad, or who they could not meet with in person. Only a couple of the lecturers had made Screencasts, live lecture capture or been involved in webinars. There is a fair degree of openness from lecturers to the subject of video teaching, interest in learning about it, and many potential benefits and possible teaching subjects to video were identified.

4.4 Inventory of video teaching made by the tourism team

The search of the Inholland Mediasite⁴⁷ that hosts all of the web lectures recorded by Inholland lecturers resulted in the following data on the tourism team Diemen. In total, 8 web lectures were found that had recorded by the team and they have been categorized by subject, language and date.

Table 24 Web lectures recorded by the tourism team as of April, 2014

Subject	Type	Format	Date	Language	Lecturers	Count
BTI	Intro to Minor	LLC	2013	NL	2	1
Global Perspectives	Intro to Minor	WL	2010	EN	1	1
Case exam preparation	Exam preparation	WL	2011	EN	1	1
Financial Management	Class content	WL	2011	NL	2	2
Training new media	Training	WL	2013	NL	1	1
Design Research	Intro to research	WL	2013	NL	1	1
Porters Five Forces ⁴⁸	Generic model	WL	2013	NL	1	1
Totals⁴⁹					9	8

The 8 different lectures were recorded a total of 9 lecturers. Seven of the lecturers had made 1 web lecture, two lecturers appeared together in 1 live lecture capture. One of the web lectures had been made by a lecturer on their own using Camtasia software. This web lecture was not posted on Mediasite but on a public YouTube link. The date range when the web lectures were made was between 2010 and 2013. Most activity was in 2013. However, three of the seven lecturers who had only made 1 web lecture, had made their only web lecture between 3 and 4 years ago. The Mediasite catalogue lists three additional web lectures from tourism lecturers not working for the tourism team Diemen (from Rotterdam or Haarlem) and these are not counted in the data above.

⁴⁷ <https://Mediasite.inholland.nl/Mediasite/Catalog/catalogs/default>

⁴⁸ <https://www.youtube.com/watch?v=Od6hiltga6c> (not on media site, on YouTube)

⁴⁹ These totals exclude video teaching made by the current researcher.

4.5 Results of focus group and interviews

In this section the data collected from the focus group, the semi-structured interviews and the group interview is presented. The results of the tourism team's preferred format of the support for their video teaching skills is outlined based on the 11 brainstorm cards and comments in the interviews. Data from the interviews and focus group are presented in themes and their sub themes.

11 types of support

Table 25 *Overview of support preference from teaching team*

Lecturer	Training Course	Workshops	Web Lectures	Handbook/Manual	Scenarios	Instructional Video	Coaching	Facilitating opportunities	Peer feedback	Screencast	Other
J	11	11	11								
T	11	11	11	11							
H	9	10	8	9	8	11	9	11	10	8	
P											
R											
Q	11	11	9	8	10	10	9		10		
V	10	8		7	11	9					
N			11	11							
W	10	10	11	9	8	11	8	8		11	
F	11	9	8	10	8	9	7	10	7	8	
G	10	11	8	5	9	6	9	7	9	8	
U	9	9	8		10	8	9	11	9	7	9
Totals	92	90	85	70	64	64	51	47	45	42	9

Based on those who did discuss this question (seven arranging the cards and three discussing this point), the following is a summary of the support format that was considered important;

- workshops, training and web lectures were mentioned by the majority of those who discussed this, and were mentioned as being the most preferred format of support;
- handbooks, scenarios and instructional video were mentioned by about half of the respondents, and were ranked with medium importance;
- peer feedback, coaching, Screencasts, and facilitating opportunities to make web lectures, were the least mentioned formats of support and were not ranked highly by lecturers in the team who discussed these issues.

Content of the support

The interview data collected resulted in a rich source of information in which the lecturers revealed their thoughts on video teaching, their concerns, worries, and perceptions, and the questions they would like to see answered through the support (appendix J).

7 major themes regarding video teaching support were identified

The following seven themes emerged during the data analysis and are explained in more detail below.

1. The transition point between old and new teaching
2. Interaction with (HBO) students
3. Web lectures and teaching
4. Improving by learning from inside/outside
5. Content
6. Technology and the teaching process
7. The organisation, resources and support

The results presented below are a synthesis of the interview data, collated and paraphrased, embodying the essence of key elements and themes discussed that can answer the sub question and contribute to the design specifications of the prototype. Supporting quotations are provided where they serve to encompass the core meaning of the theme.

1. The transition point between old and new teaching

'Because what I think is happening now is that most lecturers they do their course and they talk for an hour and a half and they get really tired. Because it is quite... well if you do that five times a day it is quite harsh.'

'I think [the new form of teaching] does affect [teachers]. In a way I can't quite grasp yet. So, if as a teacher, you start thinking whether web lectures is a good idea. You need to focus on what it adds, or what it enhances, or what it replaces.'

This theme positions itself at a moment between old and new. It contrasts the lecturers' perspective between traditional teaching and the uncertainty of a future, yet to be defined, style of teaching. The role of the teacher is changing, which requires a new didactic to be developed. Within the current education, the student population is changing. Technological options arise, which give opportunities, but which also need to be understood. Technology brings certain fears; implementing it might lead to the lecturer being bogged down by technology, or a fear that the lecturer may be 'replaced' by technology. Many questions are raised regarding how to use the technology, communicating these new processes to students; how to flip the classroom and fill the 'empty' lesson time? How to check the student understands what is communicated? How to develop video teaching skills? How to utilise the impact of lessons becoming available to a wider public? How to ensure students prepare for lessons in advance? How to capitalise on the benefits of students being able to view lessons from different locations?

2. Interaction with (HBO) students

'But what I would be afraid of, in a perfect world, the students would watch the video, and then come to the class. I'm wondering like how many students would actually watch the video? Because I see that now with homework. I'm amazed how almost impossible it is for students... for us to motivate students to do their homework, to get prepared.'

'Normally what you do, you tell something and I look at the face of the students. Do they understand it? Do they like this topic? Should I maybe explain it a bit more? You see their non-verbal communication, you know, how should I respond to this?'

'However, what I am a little bit afraid of is missing the interaction with the students.'

This theme is composed of the sub-themes motivation, holding student attention, live interaction with a known public, and understanding specific characteristics of the diverse student population. Teaching is about using the interaction with students to stimulate learning. Students can be intrinsically or extrinsically motivated to study but will they prepare for classes by watching pre-recorded lecture content? Teaching can be fun and a much valued element of this fun is the enjoyment of the interaction with students. There are concerns that technology may take away this enjoyable interaction within the teaching process. Live teaching creates room for spontaneity, improvisation and laughter. Through interaction, the lecturer matches their delivery of information to their knowledge of the specific group of (HBO) students they are teaching, reading the audience and checking comprehension. But lecturers often find themselves working very hard during class in an effort to create interaction and sometimes traditional lectures which deliver large amount of information are 'boring' and the attention span of students is stretched to the limit. There are questions about whether it is possible to create interaction through video teaching. Lecturers explained that ultimately, any video teaching needs to keep the specific end user, the HBO student, clearly in mind to ensure that it supports students reaching their learning goals.

3. Web lectures and teaching

'But I am also interested in how to integrate [video teaching] more into the course. I talked about it with [my colleague]. I said, "We have some very general lectures. Can't we do something with a few lectures that are there, on line, short ones..?"'

'I still find it awkward. I mean not as awkward as it was for the first time. But you still find yourself looking a bit odd and strange. But I think it is good to see what could be improved.'

'We are not actors, you know.'

This theme is composed of the following sub themes which are; the perceived benefits of video teaching, lecturers level of experience with video teaching, the pressure of seeing your video teaching image on the screen, the inherent nature of web lectures, and what makes a good web lecture. Many of the lecturers interviewed expressed interest in video teaching, were curious, had a desire to learn more and saw positive potential benefits of web lectures. A couple of lecturers were not particularly interested in this subject, did not want it introduced or saw it as a negative or threatening element to the status quo. Certain lecturers expressed they had some experience using video teaching while many said they had little or none. Many lecturers mentioned they thought they would feel 'awkward' and uncomfortable seeing themselves on camera. Being on camera and seeing oneself on screen was viewed as being a difficult idea for many lecturers who are used to teaching in the relative privacy of the classroom (with only students witnessing their teaching). They felt that video teaching turns the teaching process from being private viewed by a live audience, to public and readily available to an unknown audience. This led some to mention a sense of vulnerability and exposure for the lecturer, as their teaching is exposed to an unknown and critical watching public. Other lecturers mentioned

they were not bothered at all by seeing themselves on video, that this would enable them to share their teaching, by reflecting on the mirror image held up to them which could lead to a moment of learning and self-development, leading to improved teaching.

Being on screen was seen to put the lecturer under 'pressure' and the actual recording process was considered stressful and a moment when nerves were present. This exposure made some lecturers feel vulnerable and pushed them outside their comfort zone. The term 'awkward' was mentioned in several different interviews, that lecturers do not feel comfortable seeing themselves on camera. Some lecturers referred to the video role as acting, presenting, or being a newsreader and this could be considered artificial. Benefits were seen in that students could speed up, slow down, or skip through the video teaching, in a time frame that suited them.

Web lectures are often described in contrast with traditional lectures. Web lectures are seen as being linear and must be carefully planned, scripted and delivered. Traditional lectures are seen as being organic, fluid with room for improvisation, interaction and spontaneity, where a clear structure is not always followed and the lecturer has the option to jump backwards and forwards depending on interaction with the live audience. Video teaching is sometimes seen as being a threat to the role of the lecturer with potential to 'replace' traditional classes and also the lecturer. This was sometimes expressed as a concern of a top down strategy from the organisation to get rid of lecturers, to save costs that may end up with lecturers losing their job or being side lined. Many lecturers mentioned a concern that if video teaching was available to students, that students would watch the video, but then not come to class. This would lead to empty classrooms and that the teaching experience would become extinct.

Lecturers mentioned the permanent nature of web lectures. The content is recorded and available for perpetuity whereas a normal lecture is temporary and after it is delivered, exists only in the memories of students and their notebooks. Lecturers described how creating video teaching might make them more cautious about the content they present. This can lead to exposing their intellectual property which may then be appropriated by another. Some lecturers view video teaching as being complimentary to the current lectures, supporting teaching ideas, and convenient for the students being able to replay them when they wish, before, or after the class. Several lecturers mentioned that they had experience of videoing their teaching during their didactic training course when they had to record one of their classes and reflect on it afterwards. They found this a very helpful process and confronting process. However, several also mentioned that this was the only time that their teaching had been recorded.

Aspects of what lecturers thought would make a good web lecture were mentioned, including technical aspects (quality of recording process, sound, lighting, accessibility, speed for playback and searchability). Didactic aspects of a good web lecture include appropriate length to cover material, speed of delivery, alignment to learning goals, overall performance of lecturer, appropriate level of delivery of information, an extremely clear and well thought out supporting PowerPoint with an easy to follow story line, and the ultimate learning effect experienced by the student). From a content perspective, aspect that make a good web lecture were considered the concept of durability. This means making a web lecture in such a way that it has long shelf life. By excluding temporary information(e.g. dates, page numbers, recent events) and focusing on timeless information would mean the web lecture would not become dated quickly. The requirement of depending on a technician to assist in the recording process was seen as an extra hindrance to the teaching process.

4. Improving by learning from inside/outside

'But when the teacher sees their recording, they want to improve themselves. Because of this process, teachers reflect on their own teaching.'

'Or if you know, which teachers at which location are teaching that, then you just send the text and say I will make a web lecture of it and you can use it.'

Many of the lecturers mentioned the potential of video teaching of improving by learning from others, and from reflecting on their own performance. This included increased collaboration with other lecturers when developing video teaching, getting expert peer feedback on the content of the lecture before it is recorded, being critiqued on the video teaching performance by peers. Reference to helping other colleagues, sharing information, learning about your own performance as a lecturer were mentioned often. There was interest in having clear examples from lecturers experienced in using video which could be used as best practice. Lecturers discussed curiosity in learning, making individual improvement and using reflection on their video teaching performance to improve subsequent (re)recordings. There was a general sense discussed of video teaching having the potential to support the learning process, assist in coaching students and supporting the development of colleagues.

5. Content

'And if you make web lectures, they need to be sort of general. Because if your project or your assignments change every year again.'

'The first thing would be to see what already exists, and whether we can use that. See what is missing. And whether we can do that ourselves.'

The specific type of content thought to be most appropriate to video teaching was discussed by many of the lecturers interviewed. This is expanded on in the answers to sub question 5 below. Knowledge that was considered 'static', unchanging and the same year after year, was considered to be suitable content for video teaching. This includes theories, models, statistics, grammar and research subjects. This type of knowledge was contrasted with recent, contemporary or temporary knowledge that is fluid and changes within a short time span (such as trending data, or examples that quote a specific event that quickly becomes dated). Many lecturers expressed knowledge of the enormous amount of information that is already exists, in the form of YouTube video clips and on-line examples of video teaching that address standard models, theories and static knowledge. Lecturers expressed the importance of carefully checking what content already exists, in what format, before investing time in using video teaching to present this knowledge. Lecturers stated that the content should be relevant for the students and closely aligned to the learning goals, otherwise it would be redundant and would not add value. Content that can also be relevant is information about practical issues such as enrolment procedures for specific courses and promotional information for prospective students. Lecturers mentioned several times that it is lecturers themselves who know best which parts of which courses students find most difficult. This expert knowledge should be used when deciding what content should be covered in video teaching.

6. Technology and the teaching process

'It is not like it is a very easy thing to record a web lecture. And it should be made more accessible, easier. Also from a technological point of view.'

'Not to point, to sit still, not to move too much. But do use your hands, try to teach as normally as possible, try to use my hands and try to look into the camera as if they were really there.'

Three sub themes on technology and teaching were grouped under this theme. They include the opaqueness of technology, challenges in delivering teaching effectively via camera and the current support processes for making video teaching including the intake process and interaction with the technical staff.

Technology was described by some lecturers as a stumbling block. Some lecturers referred to technology was as a threat to the status quo, it is unknown, it does not work, it is not to be trusted, it is difficult to implement and it is not easy to understand. Technology can bog you down, distract you, can expose you to public embarrassment when it fails. It is a challenge to master it, it is threatening and dangerous and something that lecturers need to be protected from.

The process of interacting with technology was described as sometimes being intimidating which required assistance and support in the preparation. This process of communicating with the technology (teaching into camera) was viewed as being dull and static with no audience for live interaction. Questions about how to relate through the technology to the absent audience were raised. Developing web lecture teaching skills includes using appropriate non-verbal communication, the physical appearance of the lecturer on screen (including clothing and make-up), their on-screen teaching persona, remaining natural and following a clear structure. Before communicating via the technology, specific choices and lots of planning need to be done including carefully preparing and adjusting lecture content (revising and simplifying PowerPoint slides).

The level of technology available within Inholland was described very positively by the lecturers as being of a good level with sufficient equipment and facilities which gives opportunities for lecturers to work at a high level.

7. The organisation, resources and support

'If you have this static information at some point, then you need less contact time for lectures. So there is your money.'

'Why is it? Because the ministry [of education] thinks there won't be enough contact time. At some point all HBO will say look at the web lecture'

'It can also save the teacher time. But, that is not certain. If a teacher provides the information and then students practice, it could be double work for the teacher. And the teacher needs to take time to make the web lecture. It can be a replacement, but can also cost additional time. Because the teacher has to do both.'

The final theme groups several less tangible concepts. These are the role of the organisation and its support in the process of implementing technology, the directions from which lecturers experience the pressure to change, efficiency and effectiveness, and the allocation of resources, in particular time.

The key resource mentioned frequently was time, its allocation and the lack of enough of it. Any processes that can create more time were considered positive. Any support format will need to take into consideration the limited time availability of lecturers and increase likelihood of success by having the course located where the lecturers are, with limited additional preparation work. Contact hours and their allocation was seen as a difficult subject since much time was needed to prepare adequately for video teaching whilst the end result, video lectures, would not count towards the required contact hours for the student. This creates a sense of uncertainty as to whether allocating resources to creating video teaching will benefit the organisation in the long run. At the individual lecturer level it appears to cost more time than it generates.

Lecturers felt that they were often repeating information again and again, reinventing the wheel, and that video teaching could help them to be more efficient. Lecturers discussed possible benefits of video teaching to do things on a large scale (do it well once and it can be used many times), sharing lesson content across departments and locations, benefitting from each other's expertise. This was in contrast to much individual work that was considered inefficient.

Lecturers experienced the pressure to change coming from many different angles. The government is making certain requirements on educational organisations, the prevalence of rapidly evolving technology forcing change, the altering expectations of the student population demanding change. Inholland was described as being slow to change, and the recent turbulent process of reorganisations experienced by teaching and support staff had created a sometimes unstable environment creating a degree of uncertainty and chaos. This had led to the inability to commit to long term decisions. There was a lack of clarity regarding strategic choices regarding technology and the vision for the future remained unclear. Technology was mentioned as being an efficiency tool that could be used to control lecturers, and ultimately negatively impact their job security. The impetus for change from within the organisation was often described as being top-down, although the importance of encouraging change from bottom-up, and integrating change at all levels was mentioned. Some lecturers felt an intrinsic need to change and to try new things, and several times the concept of jumping in and 'just doing it' was mentioned. At the same time, other lecturers felt the external pressures were forcing them to change without having any choice in the matter.

Summary regarding format and content of the support

Stimulated by the set of 11 suggestion cards, respondents from the tourism team identified a number of different format in which they would like to receive the support. This is based on their personal learning preferences and the manner in which they like to learn. The main results indicated that the team would like to have a workshop format and would also find it helpful to receive information via web lectures. Preference for instructional handbooks were also indicated by a few members. Based on these results criteria can be defined that the prototype take the form of a small scale workshop supported in advance by instructional web lectures as preparation. A handbook that collects theory and instruction was also indicated as an appropriate form, with some stating this preference, and others saying that handbooks are rarely read. In addition, while discussing the format of possible support, lecturers also explored in details questions and perceptions they had about the nature of video teaching. This data

provided a large amount of input for the content of the support, what needs to be covered in order to answer the questions lecturers have.

Video teaching in the tourism curriculum

During the in-depth interviews with the team members and with the tourism Curriculum Committee, they were asked to outline areas in which they saw opportunities within the current tourism management curriculum where video teaching could make a positive contribution.

Lecturers in the tourism team saw opportunities for video teaching in almost all areas of the tourism curriculum. Before embarking on committing time to video teaching, they stressed the importance of 'checking what already exists', via other previously recorded web lectures and on-line clips via YouTube. Participants explained that the lecturer is the expert regarding which subjects are difficult for students , and which parts of the course are most complicated for students to understand. Areas of the curriculum mentioned during the interviews include:

Aligned to learning goals

- Traditionally difficult subjects such as finance, statistic, and research
- Tourism lectures where large amounts of information need to be communicated (e.g., trends in tourism)
- General management subjects which are theory based (introduction to management, marketing, project management)
- Spanish language (grammar and conversation)
- Standard 'static' information that stays the same year after year
- Frequently used theoretical models that appear simple but are often more complex than students realise (e.g. Butler's destination life-cycle, Porter's Five Forces, Pine and Gilmore) and which are introduced in year 1 and often appear in final research in year 4
- Demonstrating examples of good and bad interview techniques
- Explaining the tourism competencies and relation to the courses didactic structure
- How to prepare for case and knowledge exams
- Preparation of a study coaching portfolio, writing study coaching reflective reports

Enriching content

- General introduction to the tourism industry
- Showing destination information
- Recording industry experts to introduce and set the context for projects
- Supplementing a handbook by making a video lecture of the discussion explaining the more complex aspects
- Showing study abroad and work place experiences

Procedural knowledge

- Explaining procedures such as enrolment for minors.
- Delivering explanations of element s of the programme (from explaining specific aspects of study coaching, to outlining in detail the fourth year graduation process)

Web lecture for organisation/communication

- Promotional films (external) for prospective students (e.g., course promotion)
- Promotional films (internal) for prospective students (e.g. differentiation minors)

Teams openness to trying video teaching for their specific content

Participants were asked to explain their own level of openness to develop video teaching for specific content they had identified. They also explained in general how they viewed video teaching. As outlined in the answer to sub question 4, many of the lecturers interviewed expressed their openness and genuine interest in the idea of teaching through video and felt it could be of value to their professional development.

Summary of data regarding the tourism curriculum

When examining the entire four year tourism curriculum, lecturers on the team mentioned almost every subject and every course. In general, lecturers started by describing the subject that they were teaching, which they had experience of, and could very quickly see potential of present this content via video teaching. Content that is static and unchanging, in the form of models, theories, concepts and generic ideas seems particularly appropriate for the format of video teaching. Lecturers commented that they sometimes found themselves teaching these aspects again and again, and would prefer to have time in the classes to go into these ideas in more detail. Content that is not static, that is fluid and changing such as dates and procedures, pages in text books, handbooks and examples that become quickly dated are not as suitable for the format of video teaching since they reduce the shelf life of the video teaching.

4.6 Development specifications for prototype 1

Workshop supported by micro web lectures

As outlined in chapter 3, a choice needed to be made to focus on one specific type of video teaching and the choice was made to focus on web lectures (explained below). Based on the input from the tourism lecturers the first component of the prototype was determined as a series of micro web lectures. These lectures will explain and demonstrate the main elements of making a web lecture as mentioned by the literature. They will address preconceptions and concerns raised by participants during the interviews. Based on the preferences of the tourism team, the second part of the prototype is in the form of a workshop in which a small group of lecturers record a pre-prepared web lecture. A recording session with the technician will be set up. Rather than doing this in isolation, the recording session will be with 2-3 lecturers, the technician and a trainer who guide the process. Lecturers learn from others while having fun while making a web lecture. The lecturers will be prepared in advance by watching the micro web lectures, prepare their own web lecture and PowerPoint, receive feedback on their PowerPoint in advance, and then record the web lecture in the workshop. The criteria for the prototype are based on the needs analyses indicated by the respondents:

Reason for focus on web lectures

- Tourism lecturers indicated they see many opportunities to implement web lectures throughout the tourism curriculum
- Several members of the tourism team have some experience in making web lectures, are familiar with the format, and have viewed them
- The member of the board of directors stated support for this format .

Reason for providing supporting web lectures as preparation for the workshop

- Using the format of web lectures is one effective way to explain and demonstrate the characteristics and functions of web lectures. It uses the didactic characteristics and functions of web lectures to demonstrate those characteristics and strengths.
- The format demonstrates the ‘flipped classroom’ by providing content to participants before as preparation for the workshop.

- As preparation, workshop participants will experience viewing a variety of different web lecture formats that will demonstrate and highlight important elements.

Reason for workshop format

- The team manager stated a preference of a workshop format for the team learning style, that it would be fun and interactive and an appropriate learning format
- A small scale workshop enables the technician and the person recording the web lecture to interact in an intimate and safe practice section whilst peers observe
- Importance of keeping the process of learning video teaching ‘safe’
- A recurring theme in the interviews was the interest in learning from others.

Development specifications and criteria for prototype 1

Based on the collected data, the criteria for the development specifications for prototype 1 were defined (see appendix N).

Based on the list of criteria outlined, the prototype 1 was constructed using the curriculum spider web (Thijs & Van den Akker, 2009), constructive alignment (Biggs & Tang, 2011) and the IBL designer (see appendix M) as basis for the instructional design.

4.7 Results of screening for expected practicality

Feedback on the criteria and expected practicality of prototype was collected from a total of nine lecturers and experts. Participants stated it would be more practical if the support course was open to all lecturers and easily accessible; ‘make it open in Blackboard for anyone at Inholland’ (participant B) and ‘When it is open and instructional put it public, but more important is when you use YouTube as a platform, anyone, everyone can use it.’ and ‘Yes, anyone can do it by themselves. The theory part.’ (participant A). Making the course open and accessible was a quality that participants felt was important in order to increase the practical availability of the support to lecturers with their busy schedules and limited time. There were also questions about the preparation time required; ‘Do you expect me to do all of this [view 10 micro web lectures] before I record a 15 minute lecture?’ (participant C) and the choice to select which micro lectures you view in advance ‘Because maybe, we all need to protect our time. One hour of viewing, is not too much. Good if you can choose, some [of the micro web lectures should be] highly recommended.’ (participant E). A suggestion was made that making and developing a series of support lectures requires time and resources. It was suggested to use pre-existing and publically available content and specific examples were suggested by a couple of those interviewed.

The element of reflection during the workshop, whereby participants give and receive structured reflection drew a lot of comments. There were questions about what should be reflected on, what would happen to the reflective report and how to incorporate this process into the workshop so that the lecturer leaves with all the reflection and takes it with them (their own reflection, and that of peers, instructor and technician).

‘I don’t think I would write a reflective report. I would watch it, see how I’m doing, just experience watching my own web lecture, happy to get the feedback from others. And then use it for redoing it, for next time. But I don’t think I will write it down. Because what is the purpose of the report. Is it just for yourself?’ (participant E)

The value of reflection in the process was considered valuable but would need to be included in the course (rather than writing a report afterwards). This would make it more practically easy for teachers to give and collect it. Several participants commented on the difficulty of scheduling the staff, lecturer, instructor and web technician and that this could be a logistical stumbling block for teachers to be able to attend the course in practice, encouraging online solutions where possible. Participants suggested running the whole course online, including all feedback, which would make this easier for lecturers to attend the course. Having the whole workshop in a concentrated two hour period was seen as being a well-structured use of time. Staff replied that they would definitely ‘make time for it’ and prioritise it in their schedules because of the perceived value. Finally, it was considered important to provide a clearer structure to the 10 preparation micro lectures, so that lecturers could prioritise and select which ones they felt were most important to watch in their preparation. This would keep it more practical for the lecturers.

Lecturers stated that the expected practicality of the prototype was considered reasonable. Keeping the hours necessary to follow the course to a minimum was considered important from a practical perspective. Allowing choice for lecturers to select specific content to view in advance, rethinking the feedback and reflection process and making it accessible online were suggestions that could enhance the expected practicality of the support.

Three workshops instead of one

However, the web lecture expert stated that the expected practicality of the prototype was low. This was due to the large amount of content that was included in the ten proposed micro-lectures which could lead to cognitive overload for the lecturers. The prototype was trying to cover the entire subject of video teaching in one session, which was not realistic or desirable. The suggestion was to select only the micro-lectures and content that was relevant for the first steps and to cover these in the workshop. Additionally, it was suggested that the content could be covered in three workshops. The proposed content for three workshops was as follows:

Workshop 1: Focus on the specific skills of making a web lecture and becoming familiar with screen 1 and screen 2. This would involve preparing, practicing, making, watching, giving and receiving feedback, reflecting, and breaking the ice trying within the safety of a group of peers.

Workshop 2: Examine some more practical aspects of making web lectures based on a specific assignment (course component) the lecturer wanted to develop. The first part would involve thinking through the development process and the second part would examine some of the didactic consequences.

Workshop 3: This could focus on didactic questions about embedding web lectures effectively into the teaching process, along with flipping the classroom, creating appropriate assignments and examining how viewing behaviour of students when watching and learning from web lectures.

4.8 Results of expert appraisal for expected effectiveness of the prototype

The same nine individuals that gave feedback on the expected practicality also gave feedback based on the expected effectiveness of prototype 1. They explained to what extent they thought the proposed workshop would be effective in reaching its goals, whether it was the right way to achieve the intended result and made suggestions for how to improve it.

Positive support was received for the proposed workshop in its format and its structure. The lecturers indicated that they could see the input they had given during the initial interviews had been incorporated into the prototype. Selected comments indicating approval for the expected effectiveness of the support are outlined below.

'Your model, your prototype, is the same [format as the MOOC course recently followed] but your feedback is live, face to face. [...] I think this is the perfect way [...] this certainly makes sense to me' (participant A).

'I think this is good. The preparation. Good themes. About the fear, why to make them. Good starting point. I like the format.' (participant B)

'So I think that is great. A workshop with the team, practice a bit with video, maybe a flip. Get some tips, dos and don'ts how to make it interactive. Also good for yourself, a boost, wow I did it. If you do get a workshop, then [team manager] will say everyone has to make one video. I think it really works for your own didactic. Also feedback. [...] I think it is the right format.' (participant D)

'I think it will stimulate me to do it. I would like to do it. But I have no clue how, where or when, on what, what subject. And how I should use it? [...] I have those questions. And I think this will answer most of those questions. So I see it as practical and realistic. [...] The good thing about that is that especially in the beginning for everyone, it is new, it is stressful, exciting. It is good to go through that experience with others, who experience the same because you see the same things happening, you have the same issues and problems, so that is a good thing. [...] But you will give feedback to someone, but you will receive a lot of it. So I think the structure and the purpose of it is good. [...] So I think there is definitely a lot to win. So it is going to be great, if this is going to happen.' (participant E)

'When you said two or three [workshop participants], I thought, oh that is nice. It is a small group. I would feel safe, that feels safe, environment, safe, you know and I would not feel too intimidated [laughs] maybe a little bit. But I was like yeah. [...] It must be safe. It is a first trial. [...] So overall, to do a workshop, and really try it, that is very helpful. In a safe environment. [...] It is great it is going to happen.' (participant F)

Participants also commented on the importance of having flexibility to choose which of the 10 micro lectures they wanted to watch, and in what order. Also, to have these more clearly structured and the different purpose defined more clearly (e.g., some are theory at a general level, some are practical that you must do). The importance of learning from others was seen as being very important (both best practices and examples from fellow lecturers).

The element of watching the recording process of others was questioned by several participants though value was seen in this:

'What is the added value of having four people doing this together? If I compare that to my own web lecture, I don't see the added value of having four people? You are using a lot of time to look and listen and evaluate. A lot of time on top of that.' (participant C)

'What would be the added value of people watching the recording of the web lecture? Example how to do it. Ice breaker? What can the others learn from the process, someone

else watching it. It could be valuable, the first time? Also peer support of course.' (participant B)

Several participants commented on a desire to have a follow up workshop and training that would go into the didactic concept of flipping the classroom. The impact of it and how to do it is a subject of great importance and relevance.

Simplified learning goals

The web lecture expert and the educational expert commented on the learning goals of the prototype. They both felt that the learning goals were too ambitious for one workshop and that they needed to be simplified, reordered and prioritised. Making three workshops and basing the learning goals on this would be one way to increase the expected effectiveness of the prototype. Based on the feedback the expected effectiveness of the draft prototype was considered to be high from the lecturers, but not high from the web lecture expert and education expert.

As a result of the positive feedback from the users (who found the format appealing), the second prototype kept a similar format. However, based on the feedback from the experts, the learning goals were divided across an additional two workshops (three in total) and prioritised based on the focus of each workshop.

4.9 Prototype 2

Based on the data collected during the research, prototype 2 can be defined in more detail. This incorporates the feedback for prototype 1 on the expected practicality and expected effectiveness. The development specifications are a list of wishes, requirements, restrictions and guidelines. Based on the feedback on the prototype 1, the single workshop planned was expanded into a series of three workshops. The number of micro lectures to be viewed for the first workshop was reduced from ten to five and prioritised regarding order and content. The learning goals from prototype 1 were divided between the three workshops. The structure of the course and workshop outlined below incorporates instructional design elements from the curriculum spider web of Thijs & Van den Akker (2009), constructive alignment of Biggs & Tang (2011) and the IBL designer (see appendix M).

4.9.1 Video teaching training course

Lecturers who want to learn more about video teaching can enrol on a video teaching training course. The training course is a series of three workshops, each of which has online advance preparation via micro web lectures. In the first two hour workshop, lectures will practice making a short web lecture, supported on the course by a web lecture technician, an instructor and one or two fellow participants. If they wish to, they can then take one or two follow up workshops that cover the subject in more detail

Preparation for workshop 1

Preparation for workshop 1 involves watching a series of five micro web lectures. Each micro lecture is between 5-8 minutes. There are many online resources available which can be made available to support this process, such as a lecture on multimedia theory produced by The HAN⁵⁰. The lecturer identifies a subject for their practice web lecture, which is relevant and useful for the lecturer. The lecturer will then make a PowerPoint presentation for their practice

⁵⁰ <http://video.han.nl/p2gplayer/Player.aspx?id=9ALHL>

web lecture, about 8 minutes in length. This PowerPoint will be sent in advance to the web lecture technician and the instructor for feedback. Feedback will be sent to the lecturer to update and finalise their PowerPoint. The lecturer can loosely script the information they will cover during their practice web lecture and follow the guidelines for web lecture preparation as outlined in the 5 micro lectures.

Content of workshop 1

- Introduction from instructor to workshop including explanation of learning goals
- Introduction from technician to the equipment (microphone, recording area, clicking on the slides). It is o.k. to stop during recording, start again. Try to be natural.
- Just do it! Students start the recording process (with others watching)
- Atmosphere should be enjoyable and positive, supportive led by instructor and technician.
- Once the series of web lectures have been made, they will then be played back with the technician and group watching.
- After each one, first the lecturer recording the web lecture gets to comment on their recording
- Then fellow lecturers comment and give feedback. Then the instructor and technician.
- Then the next lectures follows the process as above
- The feedback and reflection form is completed during the feedback session (what went well, what to improve)
- Once recordings and reflection is finished, possible summative evaluation by instructor with grade
- Lectures complete workshop evaluation
- Conclusion of workshop

A: Learning goals

Workshop 1 learning goals

- The course participant can:
- write learning goals for their micro web lecture
 - prepare a set of PowerPoint slides in advance based on the specified guidelines
 - adjust their teaching style to be appropriate for video teaching
 - present the content of their micro web lecture to the camera in a concise, engaging and natural manner
 - make a micro web lecture based on a specific goals identified
 - reflect on their recorded web lecture to make adjustments and improvements for future videoing
 - give feedback to fellow participants on improvement points of their web lecture
 - summarise key reflection points on the learning process

Workshop 2 learning goals

- create a web lecture to be integrated into the curriculum
- explain the function their micro web lecture can have in the curriculum
- explain key didactic theories that can be used to understand video teaching

Workshop 3 learning goals

- how their micro web lecture could be integrated into their curriculum
- explain what function their micro web lecture could have in their curriculum
- give examples of the impact of flipping the classroom on current curriculum

- outline a module based on the flipped classroom with content delivered in advance via video teaching and well defined in class assignments

B: Conditions

- Available hours for lecturers per workshop: 2 hours viewing of micro web lectures in advance, 2 hours preparing micro lecture (including feedback on PowerPoint and content), 2 hours practicing and fine tuning, 2 hour workshop including 1 hour of recording web lectures in group and 1 hour of feedback and reflection. Preparation hours for workshop 2 and 3 will need to be negotiated based on complexity of web lecture series to be made
- No European Credits are allocated for this course

C: Contextual factors

- Commitment: The lecturers enrol based on their own interest level and intrinsic motivation
- Level of users: The lecturers have a basic level of using technology
- Workshop participants are lecturers who have not done much video teaching, are intrinsically motivated, and may be a little bit nervous or unsure of how to proceed, but brave enough and motivated to give it a go.
- The learning environment (recording studio/classroom with appropriate web lecture recording equipment) has adequate technology resources for the training
- The course has been developed based on the specific needs of the lecturers

D: Format of the workshop assessment

- There is currently no formal assessment for credits. However, course participants will get a chance to give and receive feedback on the web lectures developed and write a reflective report on their learning process
- Formative (on-going feedback during workshop)
- Summative (it could be possible to award a grade for the final web lecture based on certain criteria, but this needs to be determined.)

E: Type of learning process

- Self-study in advance, reading literature, viewing web lectures, preparing content for own web lecture
- Working by collaboration during the preparation process. Getting feedback on prepared slide content from lecturer, technician and fellow students.
- Interaction and feedback during the workshop on the web lecture delivered.

F: Delivering the workshop, adequate agreements regarding communication and support

- Transparent agreements with participants to gain commitment, establish goals and discuss the process
- Agreements regarding support needs have been covered in the research phase. Any additional specifics regarding how the course participants need to be supported before, during and after the workshop need to be identified.
- Clarification of the exact role of the technician and instructor need to be refined further.

G: Curriculum spider web

The ten elements of the curriculum spider web as outlined by Thijs & Van den Akker (2009) are used below to outline the characteristics of the prototype.

- Vision: students are learning by doing in order to become familiar with the possibilities of teaching via video
- Goals: As outlined above
- Content: Series of micro web lectures viewed in advance plus practical workshop and reflection
- Learning activities: Viewing lectures, preparing own micro web lecture and PowerPoint based on example and theory of instructional web lectures, practice of video teaching, feedback and reflection
- Role of the instructor: Guiding and supporting the course participants in this process (both a technician and instructor).
- Material and source documentation: Series of micro web lectures and academic research to support the information. Possible handbook or instructional training manual to support and outline the workshop.
- Group composition: Small group of fellow professionals with same interests, from the same organization or team (important to be with a safe group, small scale).
- Location: Study online in advance, recording and reflection in the web lecture studio/classroom.
- Time: During a scheduled session, probably during work time. Pre-preparation done in advance (own time or as allocated hours for the workshop).
- Assessment: Formative feedback during the process to course participants compiled and forwarded after workshop. Possible summative evaluation of final web lecture and course participation from instructor. Evaluation form of workshop course completed by course participants.

4.9.2 Series of supporting micro web lectures

Workshop participants view a series of micro web lectures in advance and prepare their own practice micro web lecture based on the content. The format of one general introduction web lecture to the course, and then ten preparation lectures will also enable some do's and don'ts of making a web lecture to be demonstrated. Following and watching the relevant web lectures is part of the preparation. This also puts the lectures in the position of their students, experiencing for themselves what it is like to receive information via video teaching.

General Introduction to video teaching training course

- Overview and context of workshop
- Learning goals
- What are web lectures and their format?
- What to expect during the course and workshop
- Who are the web lectures intended for?
- Video teaching trends

Workshop 1 micro lectures

1. The truth about web lectures

- Five good reasons to use video teaching
- Concerns that students won't come to class anymore/student motivation/don't like web lectures/won't watch them
- Web lectures can be fun/interactive/real
- How to feel comfortable on video and developing your screen presence
- How much time is needed to prepare your video teaching
- Threat to lecturers current job/lack of 'fun' interaction for lecturer in teaching process

- Each one of these concerns will be addressed and explained (with link to research)

2. Making friends with technology

- Overcoming your technology worries
- Role of the technician in the recording process
- The functions and options of the Mediasite system
- Fast forward, stop, pause, add documents, quiz

3. Making your PowerPoint

- Preparation
- Multimedia theory
- Learning goals for your PowerPoint
- Font/Layout/Images/number of slides
- Linear/Scripted
- Copyright images

4. Pedagogy of a web lecture

- Learning goals Traditional lecture
- Engaging/Story/Linear
- Voice/Speed/Tone of voice
- Non-verbal - Eye contact, hand gestures, staying in camera
- Sit/stand
- Activating the student in the learning process (quiz/questions/links)

5. Self-reflection and feedback

- Learning through collaboration and feedback
- During workshop
- What should you reflect on?
- Your performance and web lecture (peer and expert feedback)
- Peer performance and web lecture (your feedback)
- What are your personal learning goals?
- Written reflection on process

Workshop 2 and 3 micro lectures

The set of micro lectures outlined below still need to be developed further since there is an ongoing discussion regarding what the exact content should be between the second and third workshop. The suggested content of the preparatory micro lectures is outlined below in draft format.

6. Definitions and types of video teaching

- Traditional Lecture
- Video teaching overview (Woolfitt, 2014)
- Skype/FaceTime
- Screencast
- Live lecture capture
- Web lecture
- Other types

7. Didactic theories and models

- Flipping the classroom
- TPACK
- Constructivism and constructive alignment
- Links to research that supports this
- How to embed a web lecture takes into the didactic structure of a course
- Student learning behaviour with video teaching

8. The perfect content for a web lecture

- Traditional lecture content is boring, tiring for lecturer
- How to select content for your web lecture
- What type of content works well?
- How to adjust your content for web lecture
- How to make a web lecture that can be used for several years

9. Context

- The organisation where you work and technology
- Contact hours and how to facilitate time.
- Speed of change
- Specifics of your department/team/faculty
- External pressures to change – technology, changing student population

4.10 Summary of chapter 4

This chapter has presented the results for each of the research instruments used. Data collected was been incorporated into the prototype 1 (in relation to sub question 6). The criteria for design specifications for prototype 1 are presented in appendix N. Data collected from experts regarding the expected practicality and the expected effectiveness were applied to the criteria and updated into for prototype 2 (see appendix O). The chapter concludes by presenting the results of the research in the form of prototype 2. This second prototype outlines the structure of the training course on video teaching over three aspects (the format of the course, the content and the specific preparation for lecturers on the course). Having presented the second prototype, the conclusions of the research can now be presented.

5 Conclusions & discussion

5.1 Introduction

In this chapter conclusions are drawn, linking the research results with the theoretical context and the literature review. The first two sub questions are based on a review of the literature. The results of the remaining sub questions are based on data collected from the tourism team, Inholland staff, and web lecture experts. Conclusions are drawn per sub question based on the results. These conclusions are discussed per sub question in the context of the literature and theoretical framework. The findings are then synthesised into an answer to the main question that defines the characteristics of support that assist lecturers in the tourism team to develop their video teaching. A discussion follows that explains how the research findings have contributed to this subject at a broader level. Recommendations and focus for further research are presented. The research concludes with a critical reflection on the research process and the role of the researcher.

5.2 Answer to the research questions and discussion

SQ1: The qualities of ‘video teaching’ as described by the literature

The concept of video teaching is an evolving concept and one that covers a variety of teaching formats and their relation to technology. There is still some uncertainty in the ongoing discussion regarding exact definitions and terminology of the different categories and how to represent them. The definition of video teaching presented in this research is teaching via video in which the lecturer plays an active role, is visible and audible, and where the screen presence of the lecturer plays an important role in the didactic process. Within this definition three types of video teaching have been identified; live lecture capture, web lecture and Screencast. In the last format, screencast, there are times when the teacher is not on screen as a video presence and is only involved via audio. The audio only format of screencast falls outside the current definition of video teaching. Teaching ‘into’ a camera is a very different process than teaching a class face-to-face, and as such, it requires an adjustment to the pedagogical approach (Leeder, 2009; Waters, 2011). These three forms of video teaching have been examined in more detail and compared with the traditional lecture format to highlight the technical and pedagogical qualities of video teaching in the context of established practice. Because the basic qualities of video teaching are different to traditional teaching in a number of ways, and at several levels, this results in a need for a changing and emergent pedagogy. Video teaching remains at its core, teaching, but the teaching takes place through the lens of a camera whereby the lecturer is represented on screen with a video image and sound. Video teaching can be recorded in public during the capturing of a live lecture, in a studio with a technician, or by the lecturer with no one else present. Video teaching incorporates video image with sound, and when the teacher understands the cognitive load placed on the viewer this can facilitate improved learning results by applying rules of multi-media theory. The format in which the video teaching is viewed by the student allows for a number of personal choices to be made, with different viewing patterns, based on individual learning preferences. Interacting with video teaching in the form of ‘tagging’ can serve as a form of note-taking which can enhance student achievement. The ongoing discussion of the different types and the specific terminology is illustrated by the different representations of this (figure 2, and the researcher’s representation in figure 3).

SQ2: The different didactic functions of ‘video teaching’

Video teaching can have many different didactic functions based on the format in which it is delivered, the context of the learning environment and the specific learning goals defined. These functions can include distributing and communicating knowledge and reaching students who are not able to be physically present (due to practical or logistical reasons). In order to understand video teaching it must be placed within a relevant framework of educational theories. Video teaching can break down longer lectures into convenient chunks as outlined by Guo et al. (2014), with the function of enabling students to select the information they want to study, and focus on it specifically to achieve better learning results. Video teaching can serve different functions in the didactic process. It can distribute teaching to a wider audience than the physical classroom where there is room for asynchronous interaction, with students tagging lecture content to enhance navigation. It can function as revision material to check lecture notes, or to repeat information selected by the student, as often as the student desires. This functions as a way to give the student more control over their individual learning process than in a traditional lesson format. Through its format, video teaching can also provide links to various documents and additional sources that augment the lesson content. In some formats video teaching can be used to record individual feedback on student assignments. It can also serve as a practice tool for students who want to practice certain steps, exercises or activities by increasing teaching time.

SQ3: What is the current level of experience of ‘video teaching’ in the tourism team?

The current level of ‘video teaching’ within the Inholland team is relatively limited. In the four years since web lectures were first made by some members of the team, there has been very limited additional use of this format. The majority of the team have not yet made a web lecture, or recorded one of their lectures live, or made a screencast. In the past, several lecturers had recorded a lesson as part of their didactic training course and found that process of reflecting on their teaching as being confrontational but very educational. However, since that time, only a few have recorded any of their teaching on video.

The team is composed of lecturers with a reasonable amount of teaching experience. This indicates a stable team with many of the staff being 40 years or more, with about half the team having 11 or more years of teaching experience. This includes several lecturers who have been teaching at Inholland for over ten years. As a result of this, an established pattern in teaching procedures may have built up, making implementing new teaching techniques more difficult. Featuring in a video as part of their teaching remains an uncommon experience for most of the team. However, there is significant interest in this subject as evidenced by the enthusiastic response to the prototype and the fact that lecturers indicated that the format of the prototype was suitable. In the interviews it was clear that the subject of teaching via video is one that proves daunting for some lecturers due to the ongoing uncertainty of elements of the process that still remains unclear. However, this is balanced by a genuine interest in experimenting and learning more about this as displayed by the 91% of respondents who said they were moderately to highly-interested in learning more about the subject. Most of the team had followed an introduction instructional workshop led by one of the team members to embed YouTube videos into a PowerPoint. Lecturers made it clear that they use a lot of video clips in their teaching to support and augment the lesson content, to provide an enriched example, or a variety of examples. Sometimes the clip was used simply as a moment of light relief in an otherwise intense lecture. It is clear to the team through their first-hand experience, that there are many benefits of using video clips in a lesson. However, there was limited awareness within the team about which specific web lectures had already been recorded and were available within the Inholland database. Nor was it clear how to find them. Few of the lecturers had referred students to this material, or incorporated it into their class content. This means that

while the lecturers are aware of the benefits of incorporating video into their teaching, they are not often aware of the resources that are already out there, either within Inholland or externally.

Whilst many lecturers mentioned they felt ‘awkward’ seeing themselves on video, a number of the team indicated that they had used Skype (or FaceTime) as a format of communication with their students (usually due to the student being in another country on work placement, or due to difficulties in scheduling a face-to-face meeting). Skype represents the first step into video teaching whereby the lecturer communicates using their on screen presence (they are visible and audible on the screen) and they interact with the student via this format. What distinguishes Skype communication with the other forms of video teaching is that it is often informal, unscripted and unrecorded. The lecturer may Skype from their home computer or personal digital device if the software is not installed on a work computer. As more lecturers use this format, and become familiar in engaging with students via their on-screen video persona, it is possible that the idea of recording their teaching will become a natural next step. The composition of the team and the profile of the lecturers matches much of the literature that talks of the challenges of faculty in learning and using technology (Johnson et al., 2014; Van den Brink et al., 2014).

Within the tourism team there are only a few lecturers who consider themselves competent or expert with (video) technology. They demonstrate confidence in using technology and are comfortable with technology and video teaching. They have been involved in making more than one web lecture, or taking the initiative to record a Screencast and they can be seen as pioneers leading the way (Fransen, 2013a). Without comparing the team to other teams in comparable situation, it is not possible to say whether the tourism team has more or less video teaching experience than another team within Inholland. It could well be that lecturers of a certain age, or teaching a certain academic subject, move more quickly to this form of teaching than another group, but this would have to be researched further. The current level of video teaching of the tourism team can therefore be summed up as being basic to intermediate, with several positive indications that the team is now ready to ‘catch the wave’ of video teaching.

SQ4: What support does the tourism team need to develop their ‘video teaching’ skills?

From a practical level, any form of support for lecturers needs to take into consideration their very busy work schedules and the very limited time available for following extra courses, or taking on extra work. This means the support has to be easily accessible to follow, with as many barriers removed to ensure success. Participants in the team indicated that they preferred the format of a workshop or training course, to just do it! They indicated they would watch some web lectures as part of the training process. There was less interest in instruction manuals or a lengthy programme. Support needs to present and integrate the Technological, Pedagogical and Content knowledge as represented in the TPACK model. These three elements should be combined and clearly outlined in the support. This matches with previous findings where lecturers clearly indicated a need for simple support in learning about video teaching (Filius & Lam, 2009).

During the interviews many topics of interest were raised by lecturers. This revealed a number of common ‘beliefs’ about video teaching. These include a commonly cited fear that students won’t come to class any more, that lecturers will have less interactive contact, that the organisation is somehow ‘replacing’ live teaching by using this as a cost saving option, that web lectures are boring and students don’t like them. These opinions can all be clearly countered with evidence from research that shows the opposite is in fact the case (Day et al., 2005; De Boer, 2013). Any support for lecturers that introduces them to video teaching needs to banish

these myths quickly in order to establish a clear picture of the actual situation and the preparatory micro web lectures is a suitable format for presenting this data in a concise manner.

Based on the theories of instructional design, multi-media theory, constructive alignment and cognitive overload, any course that presents video teaching needs to be based on these elements and apply them rigorously. This means the course needs to be well structured with clear and realistic learning goals that are constructively aligned to the assessment, that all online information follows the principles outlined in multimedia theory, and that the course is designed with a very careful reflection regarding how much information, and in what format, any individual can take on at any given time.

SQ5: What opportunities are there in the current tourism course to introduce video teaching?

The tourism team see numerous opportunities for video teaching within the current tourism course. During the interviews, almost all elements of the tourism curriculum were named as being a suitable subject to be transferred to video. This indicates that the team identifies with many of the key perceived benefits of this teaching format and sees the potential for it. The most frequently named subjects were those that usually have proved most difficult to the tourism students; financial management, statistics and research. But there were also a lot of courses that had standard information that did not change from year to year. The tourism lecturers felt that this static information could be presented to the students via video teaching and this would have many benefits. If a model is presented well and clearly by one lecturer via a micro web lecture, this content no longer needs to take up valuable teaching time as it is presented for the 100th time. Instead, by flipping the classroom and presenting content in advance, this would allow more time for increased interactive contact with students in which the students are actively engaged in constructing their knowledge. This matches with ideas about flipping the classroom and potential benefits as presented in the research by Bishop & Verleger (2013). Other opportunities were seen by the team in that good video teaching content could be shared across our three locations, and with our national tourism management colleagues at other Hogescholen, and at an international level. Opportunities were viewed to overcome logistical problems such as information that needs to be given to a group of students that are not present (either abroad, or unable to attend). Video teaching could also be used for instructional processes, such as explaining course documents such as the Teaching and Exam Regulations. It could also be used to expand on web lectures that have already been recorded, such as outlining the tourism management competencies and how to prepare for a case exam.

Prototype phase

SQ6: What are the characteristics of a support prototype that assists the tourism team to develop video teaching?

The characteristics for the video training support are presented in the form of development criteria. The first set of criteria resulted in specifications for the support format and the support content. These criteria were used to build prototype 1 which had ten preparatory micro lectures leading to a 2 hour workshop. The preparatory micro lectures will be designed based on the multimedia theory to maximise the learning process and at the same time to illustrate best practices (Colvin Clark & Mayer, 2011; Mayer & Moreno, 2003) The format of prototype 1 was a helpful tool in the form of a compact training course, with minimal lecturer preparation time which concurs with previous findings that the format must be compact and easy to follow (Kliphus, 2008). Lecturers would learn with and from each other in an informal and safe environment. The theme of learning by reflecting on one's own video image was incorporated into the workshop format based on the value of reflective learning as outlined by Deal (2007) and being able to learn by viewing the work of colleagues as outlined Filius & Lam (2010), is also

incorporated into the workshop. The criteria for the prototype matched the preferences indicated by the team, the manager and the experts. The support prototype was developed specifically to avoid a purely technology based training in which the ICT department providing technical information to a passive group of lecturers which is based on previous research in this area (Kereluik et al., 2013; Mishra & Koehler, 2006). The support format was designed to make the lecturer active in the learning process by constructing their own knowledge via experience (Kirschner et al., 2006; Kyriakides, Christoforou, & Charalambous, 2013; Simons & Bolhuis, 2004). The assessment format of the prototype still needs to be clarified and is an ongoing matter of discussion. However, it is clear that based on the literature it must be based on the principles of constructive alignment (Biggs & Tang, 2011).

Evaluation phase

SQ7: What is the expected practicality of the prototype?

Input received on the expected practicality of the prototype varied. This was to do with how much time was needed, what preparation was needed, the length of the workshop and to what extent the workshop would result in enhancing the practical skills of the staff. Having the option and flexibility to choose which of the web lectures were viewed in advance was also considered important. The idea of writing a reflective report after the workshop received a lot of comment and lecturers indicated that they were unlikely to follow up on this step because of time restrictions and no clear reason to write the reflection. In order to make it more efficient, suggestions were made to incorporate writing the reflection and collecting feedback into the workshop itself.

SQ8: What is the expected effectiveness of the prototype?

Effectiveness deals with obtaining goals so the question examines the degree to which the prototype is expected to achieve the learning goals outlined. Important feedback was received from several individuals about the number of learning goals, and the complexity of them. In addition, the amount of information required to be prepared for the workshop as considered too much, by both the participants and didactic experts and so it was significantly reduced based on principles of cognitive overload (Huib K. Tabbers & Merriënboer, 2004; Schols, 2009; Sweller, 1994). It would be more realistic that this information could be simplified, restructured and presented as a series of three courses. This means that the expected effectiveness of the first prototype was low due to the amount of information being included in a short time frame. This information was taken into consideration as part of the development of the next prototype. However, the prototype contained most of the information for a series of three workshops.

Main research question

What are the characteristics of support that assists lecturers in the tourism team Inholland Diemen in developing 'video teaching'?

Support to assist the tourism team in developing their video teaching needs to satisfy a number of key criteria based on practicality and effectiveness. The team has indicated a degree of readiness and interest in developing their video teaching skills. A video teaching training course has been outlined which involves minimal preparation time for the lecturer, based on the lecturer viewing a number of micro web lectures in advance. Based on feedback in the prototype stage, it has been simplified and kept to a reasonable scale based on limited lecturer availability. The micro web lectures allow lecturers to experience the student perspective of learning from web lectures. Where possible, video content that already exists will be re-used (such as an instructional video on multimedia theory). Lecturers will make a PowerPoint based on multimedia theory, receive feedback in advance from the technician and instructor and be

introduced to the recording equipment in an informal and ‘safe’ learning environment with peers. Practical experience is gained by the lecturers where they can reflect on their own video teaching and that of their fellow lecturers. Feedback is given and received in a format that the lecturer can take with them after the workshop. Lecturers will experience ‘catching the wave’ of video teaching, and can reflect on the benefits of this format and opportunities to develop this skill further in a second and third workshop. These workshops, which are still in the conceptual phase, focus more on the didactic theory and consequences of implementing video teaching. Through practicing and having fun while experiencing the making of a web lecture, the lecturer has the chance to minimise any concerns about feeling ‘awkward’ seeing their video teaching image or feeling nervous during the recording process. Simplifying the process and lowering the entry barrier to the lecturer enables them to try something they may have been thinking about, but did not know where to start. Having made the first web lecture and being exposed to the possibilities, it may result in the lecturer planning further video teaching based on courses they teach.

The likelihood that prototype 2 will be used is relatively high based on the constructive feedback received on the first version and the interest from within the team for this training, and the support of the manager for this subject. There are still a number of steps involving building the course, making the instructional formats and making it available to the specified lecturers.

The research has focused on the needs of a specific team within one Higher Education organisation. The training course that has been developed as a result of the research is custom made for the lecturers of the tourism team. It is not possible to generalise these findings to a broader context because of the specific nature of the research. The prototype is based on instructional design principles, and incorporates essential didactic theories and approaches into its format. The content of the course is contemporary and relevant and it is hoped that the results of this research will be of benefit to lecturers outside the tourism team who want to ‘catch the wave’ of video teaching.

5.3 Recommendations

The following recommendations are made in order for the video teaching training course to move forward.

Facilitate resources for the development of the video teaching training course

Making the first workshop a reality will cost time and energy. In order for this to take place hours can be allocated to the technician and an instructor to develop the programme further, and to prepare and run the first series of workshops.

Develop the online learning course environment

The structure of the course learning environment has already been built in Moodle by one of the Inholland web lecture technicians. This platform can be developed further with the goal of making the interface as simple as possible and keeping any technical information behind the scenes. Lecturers will then have a straightforward and clutter-free environment in which to follow the preparatory micro lectures, upload their draft PowerPoints and receive and give feedback.

Engage the community of practice in the development process

The expertise and experience in the Inholland community of practice on web lectures can be actively engaged to contribute to the development of the workshops and training course.

Recommended timeline

The following timeline has been outlined which covers the academic year 2014/2015. The first workshop can be run for the tourism team in September/October. The course can be modified and updated and then offered to selected staff on other Inholland teams.

Table 26 Proposed development and training course schedule

2014/2015	Description	Developers/Instructors	Design Stage
Aug/Sep	Continue development of Moodle course platform	Instructor/Technician	Global design
Sep/Oct	Plan, write and record the first set of micro lectures	Instructor/Technician/Didactic expert(s)/COP	Global design
Nov/Dec	Workshop training 1 (tourism teachers x 2)	Instructor/Technician	Partly detailed intervention
	Re-write workshop 1 based on feedback	Instructor/Technician/Didactic expert(s)/COP	Global design
	Record micro lectures workshop 2 and 3, plan course content	Instructor/Technician/Didactic expert(s)/COP	Global design
Jan/Jun	Workshop 1 offered to other Inholland Lecturers	Instructor/Technician	Complete intervention
	Workshop 2 (first iteration)	Instructor/Technician/Didactic expert(s)/COP	Partly detailed intervention
	Workshop 3 (first iteration)	Members of the board of directors	Partly detailed intervention

Communicate the training course

The research findings, the content of the training course, and feedback from lecturers on their workshop experiences should be communicated within the Inholland community to generate further interest and inform lecturers of the opportunities to develop video teaching skills.

5.4 Critical Reflection

Having completed the research report, it is now time to reflect critically on the research process. What went well and what could have gone better. This critical reflection relies upon the research log that was kept throughout the research process and it looks at each section of the research process. At a general level, the research reached its goals by answering the main question and developing a prototype for a workshop that prospective course participants are enthusiastic about, and looking forward to it. However, there is always room to learn from the specifics of research. Design research is an iterative process which enables reflection on the completion of each research stage. Lessons learned are incorporated into the next iteration.

Role of the researcher

As a member of the tourism team, and an advocate of web lectures, it was a challenge at times for the researcher to remain neutral and impartial in the research process. The code of conduct for carrying out research within HBO was returned to regularly throughout the research process (Andriessen et al., 2010). The research protocol was clearly outlined and explained to all participants before they were interviewed and this included allowing the participant to withdraw at any time without needing to give an explanation (Robson, 2011). Several participants commented that they felt the research process was being conducted ‘properly’ and ‘formally’ and that they appreciated the transparency. While every effort was made to follow the ethical guidelines that were established, it still remains difficult for an individual to conduct research inside an organisation where they work. Robson (2004) states that an evaluation is ‘inevitably linked to policy and to political decisions’ (p. 41) and as with all research, the researcher had to be sensitive to the political dynamics within the organisation and

conscientious in handling the different interests of various stakeholders throughout the organisation, from a member of the board of directors, to a recently graduated student. However, because of the positive spirit within the team and the genuine interest and enthusiasm from all involved to know more about the subject of video teaching, the research process was rewarding and enjoyable.

Collecting the data

The first form of data collection was the questionnaire. Almost the entire team completed it and it provided valuable data. In hindsight, the questions focused on the last 12 months, and this meant that valuable data was not collected regarding the time frame prior to this period. Rephrasing the question or organising the questionnaire better, would have avoided this and provided more data. There could have been a number of other questions that could have been formulated differently. At the time of the questionnaire, it was not known what the end product would be. It would have been helpful at that time to have asked questions about the preferred type of support (based on individual learning styles) and what content individuals would like to have included in the support. This data was ultimately collected during the interviews with the use of the eleven brainstorming cards. This process was more time consuming and the data could have been collected more efficiently. Feedback received in early interviews indicated that sometimes the questions asked by the researcher were too complicated or unclear. This resulted in a focus on asking questions in a simpler format.

Obtaining access to lecturers in the tourism team was not a problem. But scheduling a meeting when more than one or two lecturers could meet together proved very difficult. In the end, it was not possible to have more than one focus group, and then with only four lecturers. During this one focus group there was an interesting discussion whereby the participants interacted with each other. One aspect that would have improved this focus group was that participants were asked to fill out some answers to questions and this resulted in 10 minutes very focused work, but without discussion. Asking participants to complete this in advance would have saved time during the focus group itself.

The nature of the research subject which is complex and many layered could have been discussed very well within more focus groups as was the original intention. The research proposal aimed to have three focus groups based on their level of video teaching, from beginner to expert. This might have led to a richer discussion that focused on key issues earlier. In the end, the focus groups were replaced by a number of individual interviews. In an individual interview, the format does not allow for discussion amongst different opinions, or forming a consensus since there is only the interviewer and the participant. Not having focus groups was a missed opportunity and could have led to some of the richness and subtlety of the data being missed. Every effort was made by the researcher to put interviewees at ease with a clear research protocol and creating a professional, formal and business like atmosphere. However, the dynamic is different in a one-on-one interview. More focus groups could have led to reaching a consensus on specific subjects earlier. Reflecting on the initial set of interviews, it can be seen that the researcher was asking questions at a much too broad level. This meant that quite often, the focus of the research which is video teaching, did not get as much attention as necessary. At a certain point, the researcher developed a clearer understanding of the research subject, and how to keep participants focused on answering the relevant questions. This was clearer in the later interviews where after one or two quick words of introduction, the main subject of the interview was approached immediately. This led to more time to explore the specific matters in detail. This is a matter of experience as an interviewer and having a clear overview of the research subject.

The search of the academic data bases could have been followed in a more systematic manner and the set of search terms could have been checked with experts to see if they encompassed relevant terminology. Terms and key words appeared via a snowball effect during the literature review and throughout the research process. A more complete set of search terms may have resulted in different literature being uncovered.

The analysis of current support for video teaching at Universities and Hogescholen in The Netherlands and abroad was a huge area to research. It quickly became clear that it was simply not possible given the time frame to do a complete and thorough search of all Higher Education. As such, this part of the research process was not systematic. During the research process, when the researcher came across the name of a University or Hogescholen that was involved in making web lectures, then this lead was explored further. There are certainly a number of organisations involved in this subject that are not named in this research. With more time and a more structured approach, this could have led to a better overview of this subject. In addition, the source is organic and continually evolving which means that having checked a web site one day, there might be additional and enriched information the day after that does not appear here.

Processing the data

Each interview was transcribed and sent to the participant. Since the interview was taped, it was not necessary to ask for a member check since the participant could not be expected to remember exactly what they had said word for word. However, the purpose of sending a transcript had an additional purpose which was to remind them of the discussion, to give them a record of what they had said, and to keep the research subject in their mind. In the case of translated interviews, it was necessary to check the translation from Dutch to English was accurate, and all of these were approved.

Transcribing all the interviews resulted in a word file with 70,000 words compiled from 23 different participants. A couple of software programmes were examined that were appropriate for analysing large amounts of qualitative data. In discussion with three qualitative research experts the decision was made to process the data manually, rather than through software. This was because there was a danger of the researcher getting so bogged down in the complexities of learning a new software programme that it would require a lot of additional time. On reflection, this was probably the right decision. However, with so much data to process, using specialist technology would have perhaps resulted in a different and more subtle interpretation of the data. It could also have uncovered a clearer connection between codes that emerged, and the process of collecting those codes into themes. Manually coding the data with colours was very labour intensive and because it was a manual process it would be difficult for another researcher to arrive at identical results. It is quite possible that important aspects of the text were missed, or not coded correctly. However, because of the highly manual nature of the process, it meant the researcher was very much in touch with the individual words and meanings of the data which led to the emergence from the data of several key ideas, concepts and themes. This process could have been repeated several times, and checked with more neutral observers, but at a certain point, a decision had to be made during the analysis process that the most important information had been extracted and that further refining of the analysis was simply not practical giving the resources available. To ensure the data processing was done in a reasonable manner, two interviews were selected and forwarded to two native speakers not involved or familiar with the research subject. Both of these individuals found similar subjects, themes and issues in the two interviews, as those that had already been found by the researcher. A section of one of the coded interviews (appendix H) is included along with an explanation of the coding. A transcript of one of the interviews was sent to a an individual not

involved with the research. Their summary of this interview is provided (see appendix I) as a check against the researcher's interpretation of the data.

The use of word clouds to visualise the data was labour intensive but did represent the data in a visual manner that could then lead to reflection and further analysis. The analysis and interpretation of the word clouds was based on instinct, and gut feeling. While this may have led to some interesting interpretations, there is no guarantee that if this data were analysed in the same manner but by a different researcher, it would lead to the same conclusions. While efforts were made to ensure this part of the research was transparent and following valid procedures, reliability could certainly have been increased if more individuals had given input on this part of the data analysis.

The first set of analysis resulted in over 200 codes. These were then laid out over the TPACK model and rearranged and refined. This was a deductive process and again the data may be interpreted and arranged differently by another researcher following the same procedures.

Building the prototype, getting feedback and generating support

Because of the extensive analysis and data collection during the interviews, this resulted in a significant delay in determining the prototype criteria which meant that the majority of the research process focused on the detailed needs analysis. Even well towards the end of the research process, there was still uncertainty about exactly what form the support would take, with what content. With additional time it would have been possible to get much more in depth feedback on the criteria and the prototype and to develop the prototype in much more detail to show a complete intervention. The methodology for feedback on the prototype (sub questions 6 and 7) is a focus group but for the same reasons as above, it was not practical to form one in the given time frame. However, nine individuals were involved in giving feedback on the prototype. Six of these were from the tourism team, and of the five lecturers who gave feedback, three had not yet had a chance to be involved in the research process. Asking for their feedback in an interview was a good manner to involve more of the team in the research process and where possible, lecturers who were available to be interviewed and had not yet been interviewed, were strategically selected on this basis. Ultimately, 15 of the 22 team members (including the manager) were interviewed for the research which is 68% of the team. During the presentation of the research findings, four of the remaining seven lecturers not interviewed were able to see the presentation and give feedback. Because 68% of the team were interviewed in the research and because updates were given during team meetings, it was possible to nurture interest within the team and generate interest in the research subject.

Critical reflection on the scope of the research results

The research has been conducted within a specific and relatively small group, the tourism team. As such there are questions regarding to what extent these results would be of use in another context. The specific level of experience of this group of lecturers, and the specific technological infrastructure and culture of teaching mean that the support prototype developed is custom made. Providing an identical format to a different group of lecturers in a different context may not lead to the same match between form and needs. However, there is the possibility that aspects of the prototype when developed into an actual workshop will be of use to lecturers in a similar situation. Throughout the research, the researcher talked to many people interested in the subject, they felt that video teaching was a topic of interest and they wanted to know more, but did not know where to start. The literature review also failed to find any simple examples that provided this information in a user friendly manner so there is a possibility that this format may appeal to a wider audience. The set of 10 micro web lectures will be developed in such a manner that they can be made available to a larger audience and the response to this content

from the number of views, and questions asked, will give an indication of the degree to which the workshop meets the needs of a broader public.

The scope of the research was deliberately limited to within Inholland and within one team. All participants interviewed were from within the Inholland organisation. While this gives a focus, it also limits the perspectives to those from within one organisation. Initially it was intended to approach video teaching experts outside of Inholland, whether in The Netherlands or abroad. This would certainly have enriched the data and given a broader perspective and could have led to a more nuanced interpretation of the research findings. Through questions posted on the Linked-in group of 40,000 professionals in Higher Education, there were several interesting leads generated to international experts. Unfortunately, following up with them in a more formal manner was not possible due to time restraints.

Critical reflection on relevance of the research

Returning to the questions regarding the relevance of research (Andriessen, 2014), the questions posed earlier can now be answered. 1) To what extent do the results connect to practice? Because there was such an extensive analysis of the needs of the team, and also in getting feedback on the prototype the results have a high level of connection to actual practice. The enthusiasm of those interviewed regarding the form of the final design shows that it is viewed as something that is attractive and relevant. 2) How can we ensure the results are used? This will depend upon time being allocated to the development and then running of the workshop as outlined in the recommendations. There is an opportunity for this to be taken further within the context of an Inholland Community of Practice for Web Lectures which has been set up to address these types of issues. The outline of an electronic learning environment in Moodle has already been set up by one of the web lecture technicians so the platform for constructing the workshop and support has already been established. Once the first workshop has been run and the outcomes reviewed, then the next steps can be taken. 3) How can the research help to improve practice? At the moment, there is a lack of knowledge and expertise regarding video teaching and there is interest in the team to develop this skill. If the workshop gives lecturers the impetus to 'catch the wave' of video teaching, and take the first step by developing this skill and improving their teaching practice, then it will have achieved one of its goals. 4) How can this be supported by choices of methodology which will ensure that the results are valid? The methodology selected to conduct this research has been discussed and checked and described. Every attempt has been made to be transparent and ethical in the handling of data, the methodologies used and interaction with participants to ensure the results are valid. 5) How can this lead to broad statements that are valid and how can this make a valid contribution to what is already known about the subject? The research findings concur with much of the academic literature on the need for practical support for lecturers to receive appropriate support in learning new technology and teaching skills (Germany, 2012; Jacobs, 2013; Schaffhauser, 2014). However, this piece of research has collected into one report information from different places, in different formats intended for different audiences, and made it accessible and available for the reader. The emergence of the themes and the final support product make a contribution to, and enrich what is already known, about the research subject.

5.5 Further Research

The focus of this research has been very much on the needs of the tourism lecturers. At an early stage, it was decided not to focus on the student perspective in order to narrow the scope of the research on the practical needs of lecturers. However, future research can focus on the students who are the users of the video teaching, their experiences and the results that any new forms of

teaching have on student learning. This could build on recent research on this subject and relate it to the research environment within Inholland (De Boer, 2013; Gorissen, 2013; Guo et al., 2014). Future research could follow the iterative design research cycle by researching prototype 3, and focus on the effectiveness of the actual support developed and the degree to which the needs of the lecturers are met by the support provided (Nienke Nieveen, Folmer, & Vliegen, 2012; Van den Akker et al., 2010). This could involve testing the partial, complete and implemented intervention in much greater detail. In addition, the increasing level of video teaching within the tourism team could be monitored and followed in a case study. The impact of this evolving technology-based pedagogy for a specific group of professionals could be examined to see to what extent this is a transitional moment in teaching (Germany, 2012) or an ongoing and long term process of change.

Afterword

Conducting the research has been a rewarding learning process and I have come into contact with a dedicated group of experts from throughout the Inholland organisation who are involved in and passionate about the interaction between technology and education.

As a result of contacts through the Master Leren en Innoveren, a Community of Practice has been set up. I am a founding member of this Inholland Community of Practice which focuses on the effective implementation of web lectures into the didactic process. The first meeting of the community took place on July 1st, 2014 and monthly meetings have been scheduled for the upcoming academic year with the goal of answering the many questions that arise as video teaching enters the educational landscape.

The current research has been selected to be presented at the Education and Technology congress, De Onderwijsdagen⁵¹, at the World Trade Center in Rotterdam in November 2014. This annual two-day congress is sponsored by Surf and Kennisnet and is a meeting place for researchers and educators to share knowledge regarding trends and developments of ICT in Education. I'm looking forward to having the opportunity to share the research findings with experts in the field.

⁵¹ <http://www.deonderwijsdagen.nl/>

Bibliography

- Allan, J., Clarke, K., & Jopling, M. (2009). Effective teaching in higher education: Perceptions of first year undergraduate students. *International Journal of Teaching and Learning in Higher Education*, 21(3), 362–372.
- Allen, I. E., & Seaman, J. (2014). *Tracking online education in the United States*. Retrieved from <http://www.onlinelearningsurvey.com/reports/gradechange.pdf>
- Alsofyani, M. M., Aris, bin B., & Eynon, R. (2013). A preliminary evaluation of a short online training workshop for TPACK development. *International Journal of Teaching and Learning in Higher Education*, 25(1), 118–128.
- Andriessen, D. (2014). *Praktisch, relevant en methodisch; Dimensies van onderzoek in het hbo*. Utrecht: Hogeschool Utrecht. Retrieved from <http://www.onderzoek.hu.nl/~media/LLL/Docs/Openbare lessen/Openbare Les Daan Andriessen.pdf>
- Andriessen, D., Onstenk, J., Delnooz, P., Smeijsters, H., & Peij, S. (2010). *Gedragscode praktijkgericht onderzoek voor het hbo: Gedragscode voor het voorbereiden en uitvoeren van praktijkgericht onderzoek binnen het hoger beroepsonderwijs in Nederland*. Den Haag. Retrieved from <http://www.hva.nl/wp-content/uploads/2011/08/Gedragscodepraktijkgerichtonderzoek.pdf>
- Baggaley, J. (2014). Reflection MOOC postscript. *Distance Education*, 35(1), 126–132.
- Bakel, K. Van, & Groot Kormelink, J. (2011). *Tour d'horizon in hed kader van het e-merge project "video to learn."* Den Haag.
- Baran, E., Chuang, H.-H., & Thompson, A. (2011). TPACK: An emerging research and development tool for teacher educators. *The Turkish Online Journal of Educational Technology*, 10(4), 370–377.
- Bassili, J. N. (2008). Motivation and cognitive strategies in the choice to attend lectures or watch them online. *Journal of Distance Education*, 22(3), 129–148.
- Beaudoin, P. (2014). 6 ways to be a better online teacher. *Campus Technology*. Retrieved May 23, 2014, from <http://campustechnology.com/Articles/2014/03/26/6-Ways-to-Be-a-Better-Online-Teacher.aspx?Page=1>
- Bichsel, J. (2013). *The state of e-learning in higher education: An eye toward growth and increased access*. Louisville. Retrieved from <http://net.educause.edu/ir/library/pdf/ers1304/ERS1304.pdf>

Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university* (Fourth ed.). Maidenhead: Open University Press.

Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. In *120th ASEE Annual Conference & Exposition*. American Society for Engineering Education. Retrieved from www.asee.org/file_server/papers/attachment/file/0003/3259/6219.pdf

Boeije, H. (2012). *Analyseren in kwalitatief onderzoek: Denken en doen* (2nd ed.). Den Haag: Boom Lemma.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn; Brain, mind, experience and school*. Washington: National Academy Press.

Breuker, E., & Rosendaal, A. (2014). *Jaarverslag WEBLECTURES.NL* (p. 16). Tilburg. Retrieved from www.weblectures.nl

Brotherton, J., & Abowd, G. D. (2004). Lessons learned from eClass: Assessing automated capture and access in the classroom. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 11(2), 121–155.

Burgess, T. F. (2001). *A general introduction to the design of questionnaires for survey research*. Leeds. Retrieved from <http://iss.leeds.ac.uk/downloads/top2.pdf>

Carnell, E. (2007). Conceptions of effective teaching in higher education: Extending the boundaries. *Teaching in Higher Education*, 12(1), 25–40. doi:10.1080/13562510601102081

Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2013). A review of technological pedagogical content knowledge. *Educational Technology & Society*, 16, 31–51.

Cobo Romani, J. C. (2009). *Strategies to promote the development of e-competencies in the next generation of professionals: European and international trends*. Cardiff and Oxford Universities. Retrieved from <http://www.skope.ox.ac.uk/sites/default/files/Monograph 13.pdf>

Colvin Clark, R., & Mayer, R. E. (2011). *E-learning and the science of instruction; Proven guidelines for consumers and designers of multimedia learning* (3rd ed.). San Francisco: John Wiley and Sons. Retrieved from <http://formulasi.googlecode.com/files/e-Learning.pdf>

Coppoolse, R., & Vroegindeweij, D. (2010). *75 modellen van het onderwijs* (First ed.). Groningen: Noordhof Uitgevers.

Day, J. (2008). *Investigating learning with web lectures*. Georgia Institute of Technology.

- Day, J., Foley, J., Groenweg, R., & Van der Mast, C. (2005). *Enhancing the classroom learning experience with web lectures* (pp. 1–12). Atlanta. Retrieved from <https://smartech.gatech.edu/bitstream/handle/1853/65/04-18.pdf;jsessionid=B384295625263A744D5C878DCE4610D7.smart2?sequence=1>
- De Boer, J. (2013). *Learning from video: Viewing behavior of students*. Enschede: Ipskamp Drukkers B.V.
- De Vera, J. M., & McDonnell, J. (1985). Video: A media revolution? *Communication Research Trends*, 6(2), 8. Retrieved from http://cscc.scu.edu/trends/v6/V6_2.pdf
- Deal, A. (2007). Lecture webcasting. *Teaching with Technology*, (January), 1–12. Retrieved from http://www.cmu.edu/teaching/resources/PublicationsArchives/StudiesWhitepapers/LectureWebcasting_Jan07.pdf
- Eimers, D. (2009). Hoe leert u het liefst? *Leren Nieuwe Stijl*, (Juni), 3–5.
- Filius, R., & Lam, I. (2009). *Rapport evaluatie weblectures Universiteit Utrecht*. Utrecht.
- Filius, R., & Lam, I. (2010). Ervaringen met weblectures. *OnderwijsInnovatie*, (March), 30–34. Retrieved from http://www.ou.nl/Docs/TijdschriftOI/OI1_2010_maart_ONDERZOEK_ervaringmetweblectures.pdf
- Fox, A. (2013). From MOOCs to SPOCs. *Communications of the ACM*, 56(12), 38–40.
doi:10.1145/2535918
- Fransen, J. (2006a). Een nieuwe werkdefinitie van blended learning. *Onderwijsinnovaties*, June, 26–29.
- Fransen, J. (2006b). Ontwerpstrategie voor blended learning. *Onderwijsinnovaties*, (September), 17–27.
- Fransen, J. (2007). Je groeit in het (competentie- gericht) onderwijs. *Tijdschrift Voor Lerarenopleiders*, 28(2), 31–38.
- Fransen, J. (2013a). De pionier als bruggenbouwer. *Weten Wat Werkt En Waarom*, 2(3), 38. Retrieved from http://4w.kennisnet.nl/media/uploads/documenten/2013-3/4wmagazine_2013-2.pdf
- Fransen, J. (2013b). *Toekomstgericht onderwijs bij Inholland Instrumentatie van betekenisvolle interactie* (p. 16). Den Haag. Retrieved from [http://www.leernetwerkeducatie.nl/sites/default/files/Lectoraat_eLearning_Notitie_onderwijs_in_de_toekomst_JF_130627 \(1\).pdf](http://www.leernetwerkeducatie.nl/sites/default/files/Lectoraat_eLearning_Notitie_onderwijs_in_de_toekomst_JF_130627 (1).pdf)
- Fullan, M. (2007). *The new meaning of educational change* (4th ed.). Abingdon: Routledge.

- Germany, L. (2012). Beyond lecture capture: What teaching staff want from web-based lecture technologies. *Australasian Journal of Educational Technology*, 28(7), 1208–1220.
- Gierke, C., Schlieszeit, J., & Windschiel, H. (2003). *Vom trainer zum E-trainer: Neue chancen für den trainer von morgen*. Offenbach: Gabal Verla.
- Gorissen, P. (2013). *Facilitating the use of recorded lectures: Analysing students' interactions to understand their navigational needs*. Eindhoven School of Education. Retrieved from <http://recordedlectures.com/>
- Gorissen, P., Bruggen, J. Van, & Jochems, W. (2012). Students and recorded lectures: Survey on current use and demands for higher education. *Research in Learning Technology*, 20(1063519), 297–311.
- Green, K. R., Pinder-Grover, T., & Millunchick, J. M. (2012). Impact of screencast technology: Connecting the perception of usefulness and the reality of performance. *Journal of Engineering Education*, 101(4), 717–737. doi:10.1002/j.2168-9830.2012.tb01126.x
- Greenberg, A. D., & Zanetis, J. (2012). *The impact of broadcast and streaming video in education*. San Jose. Retrieved from <http://www.cisco.com/web/strategy/docs/education/ciscovideowp.pdf>
- Gruyter, J. De, Verraest, R., Luyten, E., & Driessens, B. (2011). Weblectures; Automatische lesopnames voor de K. U. Leuven. Leuven: K.U. Leuven. Retrieved from [http://www.weblectures.nl/sites/default/files/Automatische lesopnames bij KUL Versie 2 DRAFT.pdf](http://www.weblectures.nl/sites/default/files/Automatische%20lesopnames%20bij%20KUL%20Versie%202%20DRAFT.pdf)
- Guo, P. J., Kim, J., & Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. Retrieved from http://pgbovine.net/publications/edX-MOOC-video-production-and-engagement_LAS-2014.pdf
- Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types: Curriculum-based technology integration reframed. *Journal of Research on Technology in Education*, 41(4), 393–416.
- Hattie, J. (2009). *Visible learning; A synthesis of over 800 meta-analyses relating to achievement*. Abingdon: Routledge.
- HBO Raad. (2007). *Brancheprotocol kwaliteitszorg onderzoek (BKO) 2009-2015* (Vol. 2015, pp. 2009–2015). Den Haag. Retrieved from http://www.vereniginghogescholen.nl/vereniging-hogescholen/publicaties/doc_view/4-brancheprotocol-kwaliteitszorg-onderzoek-bko-2009--2015

- Healey, J. (2013). A student-led, flipped, inquiry-based learning classroom doing authentic work. Retrieved from <http://www.teachthought.com/learning/student-led-flipped-inquiry-based-learning-classroom-authentic-work/>
- Hughes, J., & Daniels, N. (2013). *E-learning for primary teachers*. (N. D. Jenny Hughes, Ed.) (p. 78). Brussels: GO! Onderwijs van de Vlaamse Gemeenschap. Retrieved from www.tACCLe2.eu
- Huib K. Tabbers, R. L. M., & Merriënboer, J. J. G. Van. (2004). Multimedia instructions and cognitive load theory: Effects of modality and cueing. *British Journal of Educational Psychology*. Retrieved from http://content.ebscohost.com/pdf13_15/pdf/2004/6KX/01Mar04/13276049.pdf?T=P&P=AN&K=13276049&S=R&D=a9h&EbscoContent=dGJyMNLr40Sep7A4zOX0OLCmr0uep7RSsa%2B4TbaWxWXS&ContentCustomer=dGJyMOLX6n3xset55%2BS5iuPk4wAA
- Jacobi, R., Van der Burg, M., & de Groot, M. (2012). *Learning tomorrow; Visiedocument nieuwe media en onderwijs Hogeschool van Amsterdam*. Amsterdam. Retrieved from <https://learningtomorrow.hva.nl/nl/achtergrondinformatie/Gedeelde-documenten/310821Learning-Tomorrow-trendrapportage.pdf>
- Jacobs, F. (2013). *Slagvaardig met ICT; Ontwerprincipes voor leeromgevingen die professionele digitale competenties van hbo-studenten versterken*. Zuyd Hogeschool.
- Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A. (2014). *The NMC horizon report: 2014 higher education edition*. Austin, TX. Retrieved from <http://cdn.nmc.org/media/2014-nmc-horizon-report-he-EN-SC.pdf>
- Joosten, M. (2013). *Een andere route, een ander product: Introduceren van ontwerpgericht onderzoek in de afstudeerfase van de opleiding Hoger Toeristisch en Recreatief Onderwijs*. Inholland.
- Kereluik, K., Mishra, P., Fahnoe, C., & Terry, L. (2013). What knowledge is of most worth: Teacher knowledge for 21st century learning. *Journal of Digital Learning in Teacher Education*, 29(4), 127–140.
- Kessels, J., & Verdonschot, S. (2011). Ontwerpgericht onderzoek als innovatiestrategie. In J. E. Aken & D. Andriessen (Eds.), *Handboek ontwerpgericht wetenschappelijk onderzoek: Wetenschap met effect*. (pp. 1–25). Utrecht: Boom Lemma uitgevers. Retrieved from http://www.kessels-smit.nl/files/Design_Science_book_Verdonschot_en_Kessels_2011.pdf
- Kirschner, P. A., Clark, R. E., & Sweller, J. (2006). Work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist*, 41(2), 75–86.

- Kirschner, P. A., & Van Merriënboer, J. J. G. (2013). Do learners really know best? Urban legends in education. *Educational Psychologist*, 48(3), 169–183. doi:10.1080/00461520.2013.804395
- Kliphuis, E. J. A. (2008). Visueel leren stimuleren en faciliteren; Tien tips bij het introduceren van digitale concept maps. In *Handboek Effectief Opleiden* (pp. 9–30). Haarlem: Inholland.
- Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs: Prentice Hall.
- Krueger, R. A. (2002). *Designing and conducting focus group interviews*. St. Paul. Retrieved from <http://www.eiu.edu/~ihec/Krueger-FocusGroupInterviews.pdf>
- Kushner Benson, S. N., & Ward, C. L. (2013). Teaching with technology: Using TPACK to understand teaching expertise in online higher education. *Journal of Educational Computing Research*, 48(2), 153–172. doi:10.2190/EC.48.2.c
- Kyriakides, L., Christoforou, C., & Charalambous, C. Y. (2013). What matters for student learning outcomes: A meta-analysis of studies exploring factors of effective teaching. *Teaching and Teacher Education*, 36, 143–152. doi:10.1016/j.tate.2013.07.010
- Laurillard, D. (2002). *Rethinking university teaching: A framework for the effective use of learning technologies* (2nd ed.). Abingdon: RoutledgeFalmer.
- Lawrence, B., & Lentle-Keenan, S. (2013). Teaching beliefs and practice, institutional context, and the uptake of web-based technology. *Distance Education*, 34(1), 4–20. doi:10.1080/01587919.2013.770432
- Leeder, K. (2009). Learning to teach through video. [www.inthelibrarywiththeleadpipe.org](http://www.inthelibrarywiththeleadpipe.org/2009/learning-toteach/). Retrieved from <http://www.inthelibrarywiththeleadpipe.org/2009/learning-toteach->
- Marinissen, J., & Gratama Van Andel, S. (2012). Weblectures, een verrijking van het onderwijs. *Onderzoek van Onderwijs*, 41(June), 29–33.
- Martyn, M. (2009). Engaging lecture capture: Lights, camera. . . interaction! *EDUCAUSE Quarterly*, 32(4). Retrieved from <http://www.educause.edu/ero/article/engaging-lecture-capture-lights-camera-interaction>
- Mayer, R. E., & Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist*, 38(1), 43–52. doi:10.1207/S15326985EP3801_6
- Mediasite. (n.d.). What is lecture capture. [www.sonicfoundry.com](http://www.sonicfoundry.com/webcasting-solutions/what-is-lecture-capture). Retrieved February 20, 2014, from <http://www.sonicfoundry.com/webcasting-solutions/what-is-lecture-capture>

- Merriënboer, J. J. G., Clark, R. E., & Croock, M. B. M. (2002). Blueprints for complex learning: The 4C/ID-model. *Educational Technology Research and Development*, 50(2), 39–61. doi:10.1007/BF02504993
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054. doi:10.1111/j.1467-9620.2006.00684.x
- Moel, E. L. De. (2010). *Expanding the usability of recorded lectures*. University of Twente.
- Namkung, Y., Shin, S.-Y., & Yang, I.-S. (2007). A grounded theory approach to understanding the website experiences of restaurant customers. *Journal of Foodservice Business Research*. 2007, 10(1), 77–99. doi:10.1300/J369v10n01
- Nashash, H. Al, & Gunn, C. (2013). Lecture capture in engineering classes: Bridging gaps and enhancing learning. *Educational Technology & Society*, 16(1), 69–78.
- Niess, M. L. (2011). Investigating TPACK: knowledge growth in teaching with technology. *Journal of Educational Computing Research*, 44(3), 299–317. doi:10.2190/EC.44.3.c
- Nieveen, N. (2007). Formative evaluation in educational design research. In T. Plomp & N. Nieveen (Eds.), *An introduction to educational design research* (pp. 91–101). Enschede: SLO Netherlands Institute for curriculum development.
- Nieveen, N., Folmer, E., & Vliegen, S. (2012). Evaluation Matchboard. Enschede, NL: SLO. Retrieved from http://leerplanevaluatie.slo.nl/english/Evaluation_matchboard.pdf/download
- OASE. (2011). *Didactische handleiding* (pp. 1–11).
- Panopto. (2014). *Motivating millennials; How to use video to help the next generation of employees succeed*. Retrieved from <http://panopto.com/wp-content/uploads/2014/06/White-Paper-Motivating-Millennials-with-Video-Panopto-Video-Platform.pdf?submissionGuid=2f22b907-1f9b-4458-aef6-06eedb384b04>
- Perkins, D. N., & Salomon, G. (2006). *Transfer of learning*. *International Encyclopedia of Education*, Second Edition (Second ed., pp. 1–9). Oxford: Pergamon Press. Retrieved from <https://learnweb.harvard.edu/alps/thinking/docs/traencyn.htm>
- Pitman, R. (1989). Pushing pause: Hesitations about the video revolution. *Library Journal*, November, 34–37.

- Preston, G., Phillips, R., Gosper, M., McNeill, M., Woo, K., & Green, D. (2010). Web-based lecture technologies: Highlighting the changing nature of teaching and learning background: WBLT and the changing university context. *Australasian Journal of Educational Technology*, 26(6), 717–728.
- Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society*, 63(04), 655–660. doi:10.1079/PNS2004399
- Ramaswam, R. (2009). Capturing the market. *Campus Technology*. Retrieved February 22, 2014, from <http://campustechnology.com/articles/2009/06/01/lecture-capture.aspx>
- Reece, R. J. (2013). *Lecture capture at the university of Manchester*. Manchester. Retrieved from <http://www.tlso.manchester.ac.uk/media/services/tlso/content/files/Lecture%20capture%20supporting%20document.pdf>
- Robson, C. (2004). *Small-scale evaluation: principles and practice*. London: Sage Publications.
- Robson, C. (2011). *Real world research: A resource for users of social research methods in applied sciences* (Third Ed.). Chichester: Wiley.
- Roopa, S., & Rani, M. S. (2012). Questionnaire designing for a survey. *Continuing Education*, 46(December), 273–277.
- Ryan, A., & Tilbury, D. (2013). *Flexible pedagogies: New pedagogical ideas*. York. Retrieved from www.heacademy.ac.uk
- Schaffhauser, D. (2014). 3 ways to get faculty up to speed with technology. *Campus Technology*. Retrieved June 05, 2014, from <http://campustechnology.com/Articles/2014/06/04/3-Ways-to-Get-Faculty-Up-to-Speed-With-Technology.aspx?Page=5>
- Schols, M. (2009). Potential pedagogical benefits and limitations of multimedia integrated desktop video conferencing technology for synchronous learning. In *The international conference on E-Learning in the workplace 2009* (pp. 1–5). New York: By the author.
- Schwartz, S. (2013). The future of higher education: Faster, cheaper, better. *Policy*, 29(2), 3–9. Retrieved from <http://www.cis.org.au/images/stories/policy-magazine/2013-winter/29-2-13-steven-schwartz.pdf>
- Seidman, I. (2006). *Interviewing as qualitative research; A guide for researchers in education and the social sciences* (Third Ed.). New York: Teachers College Press. Retrieved from http://home.ku.edu.tr/~musomer/TEACHING_files/Irving%20Seidman%20Interviewing%20As%20Qualitative%20Research%20A%20Guide%20for%20Researchers%20in%20Education%20And%20the%20Social%20Sciences%202006.pdf

- Simons, R., & Bolhuis, S. (2004). Constructivist learning theories and complex learning environments. *Oxford Studies in Comparative Education*, 13(1), 13–25.
- Sonicfoundry. (2013). *Academic video at a tipping point*. Madison. Retrieved from <http://www.sonicfoundry.com/white-paper/academic-video-tipping-point-preparing-your-campus-future>
- Sonicfoundry. (2014). Mediasite. Retrieved June 20, 2014, from <http://www.sonicfoundry.com/mediasite>
- Stover, S., & Veres, M. (2013). TPACK in higher education: Using the TPACK framework for professional development. *Global Education Journal.*, (1), 93–111.
- Sugar, W., Brown, A., & Luterbach, K. (2010). Examining the anatomy of a screen cast: Uncovering common elements and instructional strategies. *International Review of Research in Open and Distance Learning*, 11(3), 1–19.
- SURFnet/Kennisnet. (2011). *Next generation video*. Retrieved from <http://www.surf.nl/binaries/content/assets/surf/nl/kennisbank/2011/Rapport+NextGen+video.pdf>
- Swager, P. (2008). Nieuwe technologie. *Develop*, 4, 90–94. Retrieved from http://www.corporate-education.com/files/Develop_2008-4.pdf
- Swager, P. (2013). *Werkwijze hanteren gehele instrument: IBL-designer*. Den Haag.
- Swan, K., & Hofer, M. (2011). In search of technological pedagogical content knowledge: Teachers' initial foray into podcasting in economics. *Journal of Research on Technology in Education*, 44(1), 75–98.
- Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction*, 4, 295–312.
- Tapscott, D. (2009). *Grown up digital: How the net generation is changing your world*. *International Journal of Advertising* (Vol. 28, p. 182). New York: McGraw Hill. doi:10.2501/S0265048709090490
- Thijs, A., & Van den Akker, J. (2009). *Leerplan in ontwikkeling*. (A. Thijs & J. Van den Akker, Eds.) *Leerplan in ontwikkeling* (pp. 1–64). Enschede. Retrieved from <http://www.slo.nl/downloads/2009/leerplan-in-ontwikkeling.pdf/>
- Tracey, M., Unger, K., & Waddell, K. (2013). Using digital communication tools and processes to model effective instruction. In T. Plomp & N. Nieveen (Eds.), *Educational design research – Part B: Illustrative cases* (pp. 1013–1035). Enschede: SLO.

- Udell, J. (2004). Jonudell.net. <http://jonudell.net/>. Retrieved February 22, 2014, from <http://jonudell.net/udell/2004-11-15-name-that-genre.html>
- Valcke, M. (2010). *Onderwijskunde als ontwerp-wetenschap; Een inleiding voor ontwikkelaars van instructie en voor toekomstige leerkrachten* (p. 699). Gent: Academiapress.
- Van den Akker, J. (1999). Principles and Methods of Development Research. In J. Van den Akker, R. Branch, K. Gustafson, N. Nieveen, & T. Plomp (Eds.), *Design Approaches and Tools in Education and Training*. Springer. Retrieved from <http://link.springer.com/book/10.1007/978-94-011-4255-7>
- Van den Akker, J., Bannan, B., Kelly, A. E., Nieveen, N., & Plomp, T. (2010). *An introduction to educational design research*. (T. Plomp & N. Nieveen, Eds.) (Third ed., p. 129). Enschede: SLO. Retrieved from http://www.slo.nl/downloads/2009/introduction_20to_20education_20design_20research.pdf/
- Van den Brink, T., Dopper, S., Esmeijer, J., Hoekstra, J., Hoorn, E., Jacobi, R., ... Woert, N. Van der. (2014). *2014 open education trend report*. Utrecht. Retrieved from <http://www.surf.nl/binaries/content/assets/surf/en/2014/trendrapport-open-education-2014-eng.pdf>
- Van Geloven, M. (2014). Mediawijsheid in het hoger onderwijs stand van zaken. Retrieved from <https://www.surfspace.nl/artikel/1509-mediawijsheid-in-het-hoger-onderwijs--stand-van-zaken/>
- Van Merriënboer, J. J. G., & Kirschner, P. A. (2009). *Ten steps to complex learning; A systematic approach to four-component instructional design* (Second ed.). New York: Routledge.
- Voogt, J., Fisser, P., Pareja Roblin, N., Tondeur, J., & Van Braak, J. (2013). Technological pedagogical content knowledge – a review of the literature. *Journal of Computer Assisted Learning*, 29(2), 109–121.
- Waters, J. K. (2011). Lecture capture: Lights! Camera! Action! *Campus Technology*. Retrieved February 18, 2014, from <http://campustechology.com/Articles/2011/06/01/Lecture-Capture-Lights-Camera-Action.aspx?m=2&Page=1>
- Weblectures.nl. (2011). Didactische handleiding. OASE Weblectures.nl. Retrieved from http://www.weblectures.nl/sites/default/files/Didactische%20handleiding_weblectures.pdf
- Winterbottom, S. (2007). Virtual lecturing: Delivering lectures using screencasting and podcasting technology. *Planet*, (18), 6–8. doi:10.11120/plan.2007.00180006

Woo, K., Gosper, M., McNeill, M., Preston, G., Green, D., & Phillips, R. (2011). Web-based lecture technologies: Blurring the boundaries between face-to-face and distance learning. *Research in Learning Technology*. doi:10.3402/rlt.v16i2.10887

Ying, D., Jacob, E. K., Yan, E., George, N. L., Guo, L., Zhang, Z., & Schubert, F. (2009). Perspectives on social tagging, 60(12), 2388–2401. doi:10.1002/asi

Yousef, A. M. F., Chatti, M. A., & Schroeder, U. (2014). Video-based learning :A critical analysis of the research published in 2003-2013 and future visions. In *eLmL 2014: The Sixth International Conference on Mobile, Hybrid and On-line Learning* (pp. 112–119). Retrieved from http://www.thinkmind.org/download.php?articleid=elml_2014_5_30_50050

Appendix

Appendix A Questionnaire



Diemen, February 4th 2014

Dear member of the HTRO Kernteam,

For my master thesis I am conducting design research into the use of video in Higher Education. The research will focus specifically on the HTRO core team (tourism team) in Diemen. Findings will be presented to the team once the research is completed.

The research will examine the possibilities that exist for using video to support teaching within the tourism team. It will explore the experience of lecturers, and the specific support needed, as they develop their use of video. The focus will be on how video can be used in a manner that enhances the teaching process at all levels.

The first step in the research is to compile an overview of how lecturers in the tourism team are currently using video. The results will be used to form focus groups and to explore specific subjects in more detail.

I very much hope that you will be able to participate in this research by sharing your perspectives, ideas and experiences about your use of video in the educational context. As a start, it would be greatly appreciated if you would take a moment to answer the questions below.

The information you provide will be treated confidentially, and in all cases, data will be presented in such a manner that your identity cannot be connected with specific published data. The research will follow the code of conduct outlined for practical based research in HBO (Andriessen et al., 2010) which includes being professional, respectful, careful, honourable, and accountable for choices and conduct.

Thank you in advance for your contribution to the research.

Zac Woolfitt

Video use to support teaching in the HTRO team

Please check your answers with a tick

First some general questions about your use of video in your teaching

1. Have you used video (e.g. viewing a YouTube video clip in class, referring students to a video link, recording you or your students during the class) during the last 12 months?

Yes No (if "No", proceed to question 5)

2. In the last 12 months, approximately how many times have you shown a video clip to your students in class (e.g. from YouTube, news clip?)

0 1-2 3-5 times 6 or more times

3. In the last 12 months, how often have you included a link to a video clip in your class material (e.g., pasting a link to a YouTube video clip into your Power Point)?

0 1-2 3-5 times 6 or more times

4. In the last 12 months, how frequently have you referred students to a pre-recorded web lecture of another teacher (e.g. "Research Techniques" on Inholland Mediasite)?

0 1-2 3-5 times 6 or more times

Now some questions about types of video in which you are visible as a teacher

5. Using video to record your lesson when students are in the classroom, is referred to as 'Live Lecture Capture'. In the last 12 months, how many times have you recorded one of your lessons with video?

0 1-2 3-5 times 6 or more times

6. A 'web lecture' is a pre-recorded lecture made in a studio showing the lecturer, his or her Power Point slides with commentary, made available on a server (e.g. Inholland's Mediasite).

In the last 12 months, how many times have you been recorded in a web lecture?

0 1-2 3-5 times 6 or more times

7. A 'Screencast' is a digital movie in which the setting is partly or wholly a computer screen, and in which audio/video narration describes the on-screen action.

How many Screencasts have you made in the last 12 months?

0 1-2 3-5 times 6 or more times

8. A 'webinar' is an interactive, live-streamed video discussion, in which participants can interact with the presenters via an on-line chat option.

In the last 12 months, how many times have you participated in a Webinar?

0 1-2 3-5 times 6 or more times

9. Please specify any other ways (not mentioned above) that you have used video in your teaching?

Please see next page

Now some questions about your level of experience using video

10. Which of the descriptions below best describes your level of proficiency in using video as part of your teaching process?

beginner <input type="checkbox"/>	novice <input type="checkbox"/>	average <input type="checkbox"/>	competent <input type="checkbox"/>	expert <input type="checkbox"/>
--------------------------------------	------------------------------------	-------------------------------------	---------------------------------------	------------------------------------

11. Have you ever had any training on using video in your teaching process (e.g., followed a course or workshop, on-line training programme)?

No <input type="checkbox"/>	Yes <input type="checkbox"/>
--------------------------------	---------------------------------

If "Yes", please specify:

12. Are you interested in learning more about using video in your teaching?

Not at all <input type="checkbox"/>	slightly <input type="checkbox"/>	moderately <input type="checkbox"/>	quite a bit <input type="checkbox"/>	very much <input type="checkbox"/>
--	--------------------------------------	--	---	---------------------------------------

13. Would you be interested in taking part in a focus group to discuss the use of video in your teaching?

Not at all <input type="checkbox"/>	slightly <input type="checkbox"/>	moderately <input type="checkbox"/>	quite a bit <input type="checkbox"/>	very much <input type="checkbox"/>
--	--------------------------------------	--	---	---------------------------------------

Finally, a few questions about you

The information you provide will be treated confidentially, and in all cases, data will be presented in such a manner that your identity cannot be connected with specific published data.

14. Your Name

15. Your age 20-29 30-39 40-49 50+

16. Number of years teaching?

0-5 6-10 11 or more

17. Years teaching at Inholland?

0-5 6-10 11 or more

18. Any other comments?

Thank you very much for your cooperation

Appendix B Invitation to group interview

You forwarded this message on 15-3-2014 16:12.

From: Woolfitt, Zac
To:

Cc:
Subject: Invitation to breakfast (Tuesday March 25th) or lunch (Thursday March 27th) R.S.V.P. requested - Message (HTML)

Send: vr 14-3-2014 16:18

Dear HTRO core team members,

As part of my research into video use in education, I am conducting interviews within the HTRO team.

You are invited for breakfast or lunch where food, snacks and drinks will be provided.

Please let me know if you would be available to join for breakfast, or lunch to share your thoughts during the discussion:

Interview option 1 (ontbijt) Dinsdag 25 maart 09.30-10.30 X1-03	Interview option 2 (lunch) Donderdag 27 maart 11.30-12.30 X1-03
--	--

Please R.S.V.P. by [clicking](#) on the relevant link below.

1) [I will attend on Tuesday 25th March for the breakfast interview](#)
2) [I will attend on Thursday 27th March for the lunch interview](#)
3) [I cannot attend either day but please contact me for an interview at another time](#)
4) [I cannot attend and do not wish to be interviewed](#)

Kind regards,

Zac Woolfitt - Coordinator Tourism Management

Appendix C Group interview protocol

Group Interview:

Date:

Location:

Time:

Interview Protocol for Sub Question 4

Guidelines⁵²

- Make sure that interviewee feels comfortable, at ease, quiet room, coffee, not rushed, personal and professional.
- Listen more than you speak
- Put questions in straightforward, clear and non-threatening way
- Eliminate cues which led interviewees to respond in a particular way
- Enjoy it! Keep a positive and open attitude, encourage involvement, make it enjoyable.

Avoid

- Double-barrelled or multiple questions, Jargon, Leading questions or biased questions

Materials

- Hand-outs and sheets.
- Tape, scissors, pens
- Breakfast!

Schedule

- 09.00 – set up breakfast in room X1-03. Set up tape recorder
- 09.15 – greet interviewees, thank them for coming. Be informal but professional. Create positive atmosphere.
- 09.30 – Give each member a sheet that explains the process of the research and ethical issues. Read out the introduction text explaining the goal of the research. Explain there are two questions. Explain the process of the brainstorming (anything goes). Ask if any questions before we start.
- 09.40 – Start with first question “In what format would the support materials to make web lectures be most helpful for you?” Give participants the format cards, and ask them to arrange them in the priority that they think is most important to them. Most important at top. Can use all, or some of the cards. Make a photograph of the order of each participant, record the discussion, see if we can reach a consensus with group.
- 10.00 – Move to second question: What do you need to know before making a web lecture and three sub questions. Hand out the three coloured sheets per participant based on TPACK. Explain that there are three types of knowledge that come into play when introducing technology into teaching. Technological, Pedagogical and Content. Tape the three question sheets up on the walls. Ask individuals to use their sheet to make notes about the different types of things they think they need to know, based on the
- 10.25 – Conclude, thank participants, remind of member check. Clear up room. Phew!

Web Lectures in the tourism team - what do we need to know?

Thank you for agreeing to be part of the group interview today, and for taking time to share your thoughts. It is greatly appreciated.

All information provided will be treated confidentially, and in all cases, data will be presented in such a manner that your identity cannot be connected with specific published data. The research will follow the code of conduct outlined for practical based research in HBO (Andriessen et al., 2010) which includes being professional, respectful, careful, honourable, and accountable for choices and conduct.

Within two weeks of the interview, you will receive a written overview of the key points discussed and asked to confirm that the overview matches what was discussed. You will have the opportunity to adjust or correct the overview.

Please note that should you wish, you are free to withdraw from the research at any time, and you are under no obligation to give an explanation or reason. We've scheduled 1 hour but will only use all of that time if necessary.

We'll start with a short introduction about video teaching. Then we'll brainstorm on two specific questions.

⁵² (Robson, 2011)

Explanation of subject

Video technology has increased dramatically in the last few years and there are now many ways in which lecturers can video their teaching, and incorporate these videos into their courses.

I am conducting design research with the team of tourism lecturers.

My research is focusing on designing ‘support’ for lecturers to inform them of the possibilities that exist in this format. And to help those who want to record their teaching, and to give you information about what you need to do in order to make the transition from teaching face-to-face, to teaching through camera.

Explanation of format

The assignment we have today, in a creative and brainstorming format, is to outline the key elements that you would like to see in these support materials. Anything goes! Please be creative and throw all possible ideas into the ring.

What information do you need to know, and in what format could this support material be?

Web Lecture

There are different forms of video teaching in which the lecturer is visible in the video. For this session, we are going to focus specifically on the format of web lectures. A studio recording without a live audience, usually with two screens. “First screen” is video image of the lecturer, “Second screen” is information (often PowerPoint but can also be images or other information).



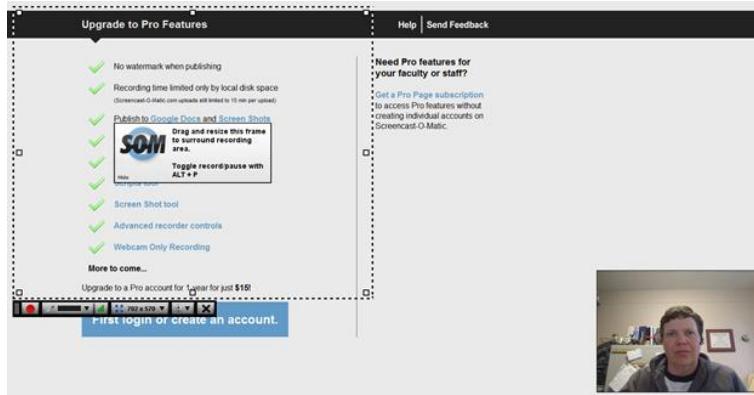
Live Lecture Capture

A live recording of the lesson you teaching in your classroom with students, but there is a video camera.



Screencast

Made at home, or on your computer. A short recording of the activity on your computer screen with audio and video of you, capturing mouse movements, a film of what happens on your computer.



We will brainstorm on the two questions about web lectures.

- 1) In what format would the support materials to make web lectures be most helpful for you?
- 2) What do you need to know before making a web lecture?
 - ❖ What information would you need to know?
 - ❖ What preparation would you need to have?
 - ❖ What questions would you have before starting to make a web lecture?

Content Knowledge

In what ways do you think making web lectures of your course content could benefit your teaching?

How well do you think the format of web lecture would be suitable to the specific subjects that you teach?

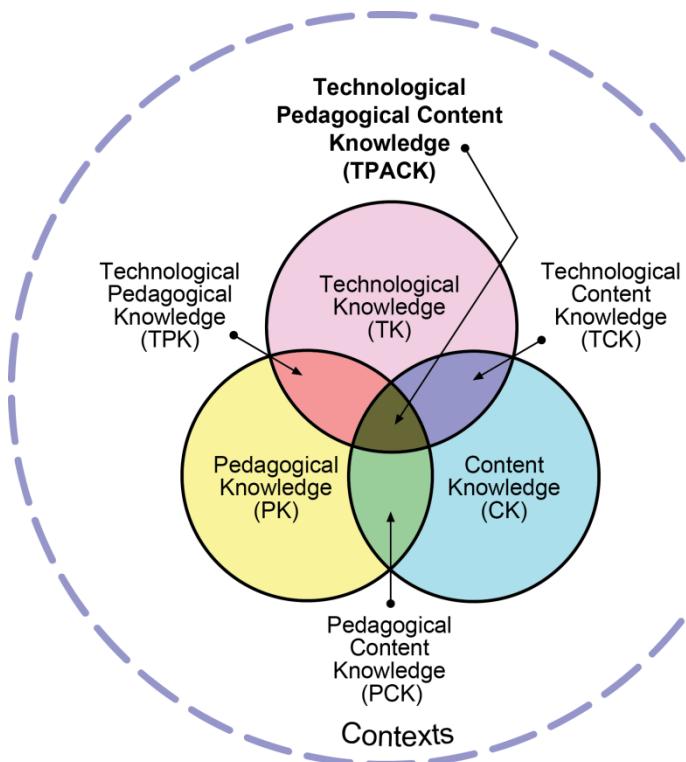
Pedagogical/Didactic

In what didactic ways could you use web lectures to improve your teaching?

What pedagogical/didactic support would you need in order to start making web lectures?

Technological Knowledge

What technical information do you need to know before making a web lecture?



Summary and closing

- 3) Is there anything else you would like to add at this point?

Thank you very much for your time!

List of possible formats that video support could take place

Handbook/manual To explain subject and give information to make web lecture
Instructional Video To present current situation regarding video teaching, along with examples of how to begin, technically and didactically
Screencasts A Screencast can be made to demonstrate different possibilities.
Web lectures A series of web lectures could be recorded that demonstrate by their form the different options available for video teaching.
Scenarios A series of different web lecture scenarios (examples of web lectures from fellow teachers) could be viewed as inspiration.
Facilitating opportunities to do video teaching Teachers can be supported and encouraged to identify opportunities in their teaching where web lectures can be made.
Coaching Analysis of recorded video teaching discussed with a video coach in a reflective environment.
Workshops A series of introductory workshops about possibilities of web lectures and practice making a web lecture and trying out different didactic concepts.
Training Course A training course (featuring several sessions on different days) to train teachers in teaching through web lectures.
Peer feedback Viewing and critiquing web lectures from fellow teachers, giving/ receiving feedback.

Appendix D Reminder email for questionnaire completion

From:  Woolfitt, Zac
To: [REDACTED]
Cc:
Subject: HTRO team use of video in teaching - questionnaire for masters research

Sent: di 4-2-2014 22:14

Message Video Use in HTRO Team - Questionnaire.docx (42 KB)

Dear [REDACTED]

This email is being sent to those teachers who were not able to attend the HTRO core team meeting today, where the research was introduced.

Attached please find a questionnaire for my research into use of video in teaching within the HTRO team.

Included is a cover letter that explains the focus of the research and ethical considerations regarding the collecting of data.

It would be greatly appreciated if you could complete and return the questionnaire to me (either digitally, or by putting a copy in my mail box) by Monday 10th February, 2014.

Kind regards,

Zac

Appendix E Selection of databases searched for video teaching

Academic Search Complete

Academic Search Complete is the world's most valuable and comprehensive scholarly, multi-disciplinary full-text database, with more than 8,500 full-text periodicals, including more than 7,300 peer-reviewed journals. In addition to full text, this database offers indexing and abstracts for more than 12,500 journals and a total of more than 13,200 publications including monographs, reports, conference proceedings, etc. The database features PDF content going back as far as 1887, with the majority of full text titles in native (searchable) PDF format. Searchable cited references are provided for more than 1,400 journals.

Academic Search Research & Development

Academic Search R&D is the world's most comprehensive scholarly, multi-disciplinary full-text database, geared specifically toward addressing the needs of research and development. This product contains over 3,300 full-text journals, including more than 2,900 peer-reviewed journals. In total, this database offers content from more than 6,400 publications including journals, monographs, reports, conference proceedings, etc.

[Title List](#) [More Information](#)

Education Research Complete

Education Research Complete is the definitive online resource for education research. Topics covered include all levels of education from early childhood to Higher Education, and all educational specialties, such as multilingual education, health education, and testing. Education Research Complete provides indexing and abstracts for more than 2,100 journals, as well as full text for more than 1,200 journals, and includes full text for nearly 500 books and monographs.

ERIC

ERIC, the Education Resource Information Centre, provides access to education literature and resources. The database contains more than 1.3 million records and provides access to information from journals included in the Current Index of Journals in Education and Resources in Education Index.

Science & Technology Collection

The Science & Technology Collection contains over 830 leading full text journals covering relevant aspects of the scientific and technical community. Topics include aeronautics, astrophysics, chemistry, computer technology, geology, aviation, physics, archaeology, and materials science. In addition to the full text, this database offers indexing and abstracts for more than 1,740 publications.

Appendix F Questions for tourism Curriculum Committee

- What opportunities do you see in the tourism curriculum for videoed teaching to support student learning?
- Which specific subjects in the curriculum prove most difficult for tourism students (e.g. high percentage of failure in exams).
- If you had to prioritise a place to start, which subjects would you chose to add video support to, and why?
- What are other areas in which you think videoed teaching could be useful in HTRO/TM?
- What potential benefits do you see in using video teaching to support the curriculum?
- What potential disadvantages do you see in using video teaching to support the curriculum?
- What additional comments or suggestions do you have regarding this subject?

Appendix G Summary of interview with Inholland board member

May, 2014 – Den Haag

In an interview with a member of the board of directors of Inholland, the relevance of the research subject (developing support for lecturers developing video teaching) was discussed. The member of the board of directors explained the importance for Inholland to develop a clear strategy regarding the technological developments in education. He believed that the discussion regarding defining strategy on this matter should come from both the top and the bottom of the organisation. He saw web lectures as being a format that helps lecturers develop a professional attitude towards digital education. The benefits of using web lectures were discussed which include increasing the success rate of students on traditionally ‘difficult’ subjects, flipping the classroom to increase engagement, and using technology to enrich the curriculum. This can lead to an intensified relationship between lecturer and student, along with the chance to reach an enriched and deeper level of learning. Web lectures can be used as general parts of general courses very effectively. However, he commented that the motivation for making web lectures is more effective if it comes intrinsically from lecturers. He made it clear that he understands the complexities of making a good web lecture and that this is not straight forward, and is time consuming. ‘The old fashioned definition’ of contact hours and the need to provide a certain number of contact hours per year provide a challenge for allocating resources to the development of web lectures. Ultimately, education is about physical interaction between lecturers and students and web lectures can help this. Support is needed in order to facilitate this process and manage it in an efficient manner by giving space to the pioneers to act as guides for the future developments. He also commented that there is a need for Inholland to progress faster regarding the use of technology in education. This can then lead to more collaboration and cooperation between Higher Educational organisations within The Netherlands and abroad.

Appendix H Example of transcribed and coded interview

Section of a coded interview 'A'

In addition to the live lecture capture, web lectures were also made. For period 2, initiative for this came from A, who wanted to do the lessons differently. Many topics were not necessary to be taught in the class live and could be taught via camera in the form of a small PowerPoint and videoed knowledge clip. A introduced the knowledge clip, from own initiative. This made it possible for A to explain more during the classes, with real world examples, rather than taking that time to explain a model, or a theory which could be done outside the class time. Students could view it and come to class. This gave more freedom and made the classes more lively, rather than explaining necessary but dull theories and models. And the small knowledge clips of 5-7 minutes are still available. In total about 7 or 8 clips were made. A made an appointment, then recorded 2 or 3 in a row.

A had not made web lectures before, teaching into camera. The technician explained a lot about the process, A discussed it in advance with the technician. A discussed the design, what would be done, the PowerPoints, and what the content would be. A received a lot of information from the technician, then just did it. Camera was set up and A stood in front and did it. Technician gave a lot of feedback, from other side of camera and was very quick editing. Within an hour the lecture was available to view, to watch back, and A could reflect on own delivery.

When viewing the live lecture capture back, A was quite surprised on own natural delivery, not afraid of camera, though aware of it. Standing there naturally, sometimes talking too fast, or explained information to PowerPoint behind, rather than to class in front. In general, did quite well.

So far, most of the department (about five or six lecturers), have done the live lecture capture. Knowledge clips were different, so far only A has done them. Everyone wants to do it, but it is a matter of time.

Interest in the teaching group comes from A's enthusiasm. Others saw a few things, and saw benefits of not having to explain information during class. Opportunity to do other things. Can leave the dull information where it belongs. Can do other things. Explain things. Apply examples from own experience in the examples, that is what A wants to do with students, not just explaining. With live lecture capture, there were some colleagues who were hesitant

Coding key (showing 11 of the 21 codes employed)

- X Traditional teaching vs. new didactic options
- X Boring/Funny/Enjoyable class - Interest level of students
- X Pressure to change (from internal/external?)
- X Teacher knows best how and what to teach
- X Process of recording a web lecture
- X Experienced or not experienced with video teaching
- X Desire for self-improvement/reflection/learning process
- X How to deliver the content in video teaching
- X Learning from others, collaboration
- X Seeing self on video (reaction to being filmed)
- X Time (as a resource)

Appendix I Independent coding check

Summary of interview F by independent individual not involved in the research

The interviewee primarily seemed concerned about the lack of contact time with students and the non-interactive nature of a web-lecture (or similar). Not being able to interact with your students makes it very prescriptive, and they appeared uncomfortable with this as a concept. One of the key attractions for the interviewee of teaching was the ability to talk and interact with their students; by delivering training via a web-lecture, this interaction would be lost. Use of videos in teaching is and can be a good thing, but generally as a break within a lesson (IOT wake the students up) rather than as a substitute for a lesson. Concerned about lack of experience in making videos, and the fact that a web lecture is an entirely different form of teaching from an actual lesson – the web lecture needs to be much more structured, with specific places to stand and ways to stand, which runs counter to the interviewees experience and passion in teaching. Interviewee had an interesting observation regarding motivating students, that by excluding those from the class who had not done their homework the trickle-down effect to the remaining classes meant that those who came behind had done so, but that this was now no longer possible which meant students often turned up having not done their homework. Interviewee needs to be convinced of the value of web-lectures, given that the web-lectures feel very artificial.

Appendix J Draft themes, categories, codes and dimensions

TPACK	Categories/Codes/Dimensions	Pair 1	Pair 2
Technology Knowledge	Video Teaching (sees benefit of)	Interested in/good/wants it/natural talent/ enjoys / knowledgeable about	Not interested in/not good/does not want it/ does not enjoy
	Efficiency/Effective	Efficient/ large scale	less efficient/ small scale
	Technology (opaqueness)	Threat/not interested in/low quality/does not work/fear of new/do not trust/ difficult (implementing)/	Opportunity/interested in/high quality /works/embracing new/ trust/ easy
	Technology delivery (how to deliver content) , communicating to camera	web lecture skills	techniques, power points/ structure/ think it through relate/technology
	Recording web lecture process/resources/ intake process/ assistance/ technical aspects	technology/preparation/enough resources/ adjusting content from standard lecture to WL (also through new web lecture technology, tagging)	library (accessing archive) /planning/not enough resources
	Technology/Time investment/contact hours/ time as a resource	Low /waste of time / more work	High/costing time/investment/ saving time/ not enough time
Pedagogic Knowledge	Motivation	Extrinsic (teacher works), convinces students	Intrinsic (student works), self-starter
	Self-Improvement for teacher	Better/reflect	Worse/don't reflect
	Teacher learn from others/teach/feedback/ support/examples/good practices	from others/teach/feedback/ support/examples/good practices	from self/learn
	Experienced teaching with video	experienced/good at it	not experienced/not good at it
	What makes a good web lecture?	quality good/ bad/ speed/ length/ alignment/ learning goals	Quality - technical/ content/ delivery(performance)/ learning goals/ learning effect
	Changing role of teacher/didactic/ learning (old/new)	traditional/old/past/planning/ level of education/ higher/ lower / curriculum changing/staying same	new/future/change/ learning results/ practice in class/ clear goals/ didactic structure/ Communicating technology change/ How to use it (learn with it)/ Informing students (how to find it)
	Seeing self on video/being on camera/ confidence/ actor / pressure	Confident/safe/secure/ nerves/ recording process/ 'live' pressure	Not confident/going too far/vulnerable/ slower/faster
	Didactic use of web lectures (nature of)/ Linear/static	Replacing normal classes (strategy) /still available (permanence) /in class/ visual / ownership of content/ public/private	Complimentary/supporting/ convenient/ viewing before/after repeating/ before/ after class/ availability/ everyone can see/ public exposure
	Interactive/improvise/live/ knowing audience/ energy/ open	Contact/reading audience/personal/ connecting/ checking if understood/ jokes	No contact/one way/impersonal
	Students/ Who is WL for?/ Nature of target group/ level/ Generation Einstein/ attention span/ concentration	Everyone/ homogenous (where they are in classroom, sick, abroad).	Specific group (of students on course)/ heterogeneous (level)
	Freedom of delivery	Improvisation/flexibility/Non-linear	Scripted/inflexible/Linear

Content Knowledge	Content is interesting /hold attention	Boring (tuning out)/teacher no energy	Funny / teacher high energy/job enjoyment having fun/ interesting/ Flipping/ Experimenting
Type of content	Models/Theory/ static / stable knowledge/ (check if web lecture already exists)	Cases/ fluid/ change	
Content of support format	(format) Workshops, training, handbook, scenarios		
Context	Change pressure/Support	Organisation, top down/slow/vision/ management uses technology to control (job security, unsafe, threat, replacing teachers)	From teachers/students bottom up/fast/no vision

Appendix K Sample word cloud

10 Support format



Appendix L Interview schedule

No.	Stakeholder role	Type of interview	Date
1	Lecturer tourism team	Individual Interview	06/03/14
2	Lecturer tourism team	Individual Interview & prototype	10/03/14
3	Lecturer tourism team	Individual Interview & Group	11/03/14
4	Lecturer tourism team	Individual Interview	11/03/14
5	Web lecture technician	Individual Interview & prototype	17/03/14
6	Tourism Curriculum Committee (CuCo)	Group Interview	18/03/14
7	Inholland web lecture practitioner	Individual Interview	20/03/14
8	Web lecture expert, Lectureship eLearning	Individual Interview & prototype	21/03/14
9	Lecturer tourism team	Group	25/03/14
10	Lecturer tourism team	Group & prototype	25/03/14
11	Lecturer tourism team	Group	25/03/14
12	Lecturer tourism team	Individual Interview & CuCo	26/03/14
13	Lecturer tourism team	Individual Interview	27/03/14
14	Lecturer tourism team	Individual Interview	31/03/14
15	Manager tourism team	Individual Interview & prototype	31/03/14
16	Inholland education expert	Individual Interview & prototype	03/04/14
17	Lecturer tourism team	Individual Interview	03/04/14
18	Inholland student (web lecture researcher)	Individual Interview	08/04/14
19	CVB (Inholland board of directors)	Individual Interview	08/04/14
20	Inholland web lecture practitioner	Individual Interview	28/05/14
21	Lecturer tourism team	Prototype Interview	23/06/14
22	Lecturer tourism team	Prototype Interview	23/06/14
23	Lecturer tourism team	Prototype Interview	23/06/14

Appendix M IBL designer

Step 1 - Goals, requirements and contextual factors	
	Goals
	The student (course participant) can:
	write learning goals for their web lecture
	explain how their web lecture could be integrated into their curriculum
	explain what function their web lecture could have in their curriculum
A	prepare in advance a set of PowerPoint slides that are suitable for a web lecture
	adjust their teaching style to be appropriate for video teaching
	present the content of a web lecture to the camera in a concise, engaging and natural manner
	give feedback to fellow participants on improvement points of their web lecture
	reflect on their recorded web lecture to make adjustments and improvements for future videoing
	write a short reflection on the learning process
	Conditions
B	Available hours for teachers: 2 hours viewing of micro lectures in advance, 2 hours preparing micro lecture (including feedback), 2 hours practicing and fine tuning, 2 hour workshop including 1 hour of recording web lectures in group and 1 hour of feedback and reflection, 1 hour of writing a reflective report
	No European Credits are allocated for this course, certificate to be discussed
	Contextual factors
	Commitment: The participants attending the course (teachers on the tourism course) select it based on their own interest level and intrinsic motivation
	Level of users: The participants have a basic level of using technology (adapt and use self-scan?)
C	Group of participants are most likely teachers who have not done much video teacher and are a little bit nervous or unsure of how to proceed, but brave enough and willing to give it a go.
	The learning environment has adequate technology resources for the training
	The course has been developed based on the needs of the participants but those of the instructor have not yet been identified.
	Other contextual factors are not yet identified.

Step 2 - First sketch of the course structure

	Prioritising learning goals and identifying main goals
1	prepare a set of PowerPoint slides that are suitable for a micro lecture
	present the content of a web lecture to the camera in a concise, engaging and natural manner
	reflect on their recorded video to make adjustments and improvements
	give feedback to fellow participants on improvement points of their web lecture
	adjust their teaching style to be appropriate for video teaching
	Course content
2	Set of micro web lectures as preparation for workshop
	Supporting literature as preparation
	Practice web lecture recording session including coaching and feedback
	Complex integrated learning tasks
3	The participants will work on making a web lecture based on a specific goal they have identified. The workshop involves using many different types of training processes.
	Format of assessment
4	There is no formal assessment for credits. However, participants will get a chance to give and receive feedback on the web lectures developed and write a reflective report on their learning process
	Formative (on-going feedback during workshop)
	Summative (could be possible to award a grade for the final web lecture based on certain criteria, but this is not necessarily needed in this context)
	Choice of the electronic environment is established based on the context of the school infrastructure
5	Series of web lectures to be viewed in advance
	Literature to be read
	Software to record the web lectures with technician
	Use of electronic platform to post the finished web lectures. Moodle as learning platform for easy control.
6	Type of learning process
A	self-study in advance, reading literature, viewing web lectures, preparing content for own web lecture
B	Working by collaboration during the preparation process. Getting feedback on prepared slide content from lecturer, technician and fellow participants.
C	Interaction and feedback during the workshop on the web lecture delivered.

Step 3 - Delivering course, adequate agreements support and communication

A	Agreements with participants to gain commitment, establish goals and discuss the process
B	Agreements regarding support needs (covered by the research phase). Specifics regarding how the participants need to be supported before, during and after the workshop need to be identified.
C	Clarification of the role of the technician and trainer/coach needed.

Appendix N Curriculum spider web

Component	Key question	Answer
Vision	For what reason are they learning?	In order to become familiar with the possibilities of teaching via video
Goals	What goals are they learning for?	As outlined in the learning goals of each workshop
Content	What do they learn?	How to make a good web lecture, multimedia theory, didactic approaches
Learning activities	How are they learning?	Viewing micro lectures, preparing web lecture and PowerPoints based on micro lectures, practicing video teaching, giving and receiving feedback, reflecting
Role of the teacher	what is the role of the lecturer in their learning?	Trainer and technician guiding and supporting the students in this process
Material and source documentation	What do they learn with?	Micro lectures and academic literature. Possible handbook to support process
Group composition	Who are they learning with?	Fellow lecturers from the same organization or team (important to be with a safe group).
Location	Where are they learning?	Study at home, record the video teaching in the web lecture studio/classroom.
Time	When are they learning?	Pre-preparation done in own time outside of working hours (or in allocated hours). Recording done during a scheduled session, probably during work time.
Assessment	How is their learning tested?	Formative feedback during the workshop Possible summative evaluation of final product

Appendix O Development specifications for prototype 1

Criteria for 'support' format	
Criteria	Explanation
Structure of support	Instructional web lectures and an interactive workshop/training
Comfort zone	Learning environment must be safe with high level of trust
Preparation	Use individual preparation time with feedback. Include theory and answers to teacher questions
Micro lectures	Use form of micro lectures to inform teachers in advance, examples of best practice
Workshop	Make it interactive, fun and safe
Scale	Small Scale, with intimate setting, 2-3 participants
Access to course	On line and in person
Time commitment	Must be short and focused and effective use of time

Criteria for 'support' content	
Criteria	Explanation
Why?	Clear explanation as to benefits for teacher if they do video teaching
How?	Step by step practical guide to learn the basics of video teaching
Theory	Include relevant information about key educational theories
Teacher Concerns	Clearly clarify main teacher concerns (e.g. loss of interactive contact with students, students not attending lectures, video teaching is boring).
Traditional/New	Including information about how video teaching is different to face to face teaching
Video teaching	Identify and clarify the different types that are available
Learn from others	Examine best practices and discuss key elements through collaboration
PowerPoint	Explain and demonstrate clearly the best practices for preparing PowerPoints
Non-verbal communication	Give information about non-verbal communication, hand gestures, speech rate, eye contact, clothing
Impact on curriculum	Give insight into how the video teaching can be integrated into the curriculum
Technology	Explain technology of process, options and make it less daunting
Pedagogy	Clear instructions on how to teach effectively via video
Content	Explain options regarding content that is suitable
Context	An examination of the changes (from the organisation and external factors) that are having an influence on this subject
Feedback	Include chance to give and receive feedback during learning process
Reflection	Include moment to reflect on own performance

Appendix P Development specifications for prototype 2

Course component				Inventory of wishes and requirements	Lecturers	Tourism team manager	Experts (WL/tech/ed)
	Workshop 1	Workshop 2	Workshop 3				
Format	x	x	x	Structure of support is instructional web lectures and an interactive workshop/training	x	x	
	x	x	x	Learning environment must be safe with high level of trust in comfort zone	x	x	
	x	x	x	Use individual preparation time with feedback. Include theory and answers to teacher questions	x	x	x
	x	x	x	Use form of micro lectures to inform teachers in advance, examples of best practice	x	x	x
	x	x	x	Make workshop interactive and fun	x	x	
	x	x	x	Small Scale, with intimate setting, 2-3 participants	x	x	
	x	x	x	Course available on line and in person	x	x	x
	x	x	x	Must be short and focused and effective use of time	x	x	
Micro lecture content	x			Clear explanation as to why teachers can benefit if they do video teaching	x	x	
	x			Step by step practical guide to learn basics of how to make video teaching	x	x	x
	x			Explain and clarify main teacher concerns (e.g. loss of interactive contact with students, students not attending lectures, video teaching is boring).	x	x	x
	x			Include information about how video teaching is different to face to face teaching	x	x	x
	x			Define the different types of video teaching available	x	x	x
	x			Explain and demonstrate clearly best practices for preparing PowerPoints	x	x	x
	x			Explain multimedia theory in relation to PowerPoints			
	x			Non-verbal communication, hand gestures, speech rate, eye contact,	x	x	x
	x			Make technology less daunting, give options, use of autocue, lighting, microphone	x	x	x
	x			Clear instructions on how to teach effectively via video	x	x	x
		x	x	Include relevant information about key educational theories			x
		x	x	Give insight into how video teaching can be integrated into the curriculum	x	x	x
Workshop content	x	x	x	Present context of organisation (internal/external) influencing situation		x	
	x	x	x	Examine best practices and discuss key elements, learn through others	x	x	x
	x	x	x	Include chance to give and receive feedback during learning process	x	x	x
	x	X	x	Include moment to reflect on own performance			x
	x			Explain linear nature of web lecture format			x
	x	x		Help lecturers to overcome nerves	x	x	x
		x	x	Explain different options regarding suitable content for a web lecture	x	x	x
			x	Detailed explanation of flipping the classroom with examples and practice	x	x	x

