

Picture Proposal: Planning for the Interactive Use of Photos in the Higher Education Classroom

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Abstract

The world in which we live is becoming increasingly visual. A photo is taken in every moment of everyday to capture a special moment in time. The very nature of photos inspires sharing with others, evoking questions as mystery surrounds the photos: Who are the people in this photo? Who took it? Why was this photo taken and what story hides behind this photo? Emotions are ignited and recalled as we view photos. While there is mounting demand for individuals to use, understand, and create visuals within their day-to-day life, their potential within education is often overlooked. This qualitative study was exploratory in nature and examined how a group of teachers in an Institute of Technology and Polytechnic in New Zealand were using photos in the classroom. Data was gathered from a number of sources starting with an institute-wide online survey. This was followed by interviews of six teachers using photo elicitation, and observations their teaching classrooms. The research concluded that photographs are regularly underutilised by many higher education teachers, however when carefully planned and used interactively photos can act as powerful tools for enhancing students' learning. This study deliberated ways photos could be utilised further to encourage interactive deep-learning, in order to enrich both teachers' and students' educational experiences. The research deliberates that, as higher education teachers, it is imperative the benefits of photos are recognised and skills required to become visually literate are developed. The challenge is made to higher education teachers to improve their knowledge and planning in order to better use photos to enhance students' learning.

Keywords: Photos, teaching, learning, interactive learning, Huakina, photo-elicitation

Introduction

There is little doubt that photos, have the potential to evoke emotions and memories, stimulate discussion, communicate ideas, and aid concrete understanding of complex matters. Photos are a recognised and time-honoured part of our life however, their potential within higher education is often overlooked. Within research fields, photos have long been recognised for their ability to capture and simulate people's thoughts and experiences (e.g. Collier & Collier, 1986; Pink, 2001). As higher education educators it is time the benefits of using photos are recognised and that skills are developed in order to become visually literate. Quality teaching enhances quality learning and is an area that deserves a dedicated focus, particularly within New Zealand's ITPs (Institute of Technology and Polytechnic) where many of the teaching staff have had no targeted teacher training. Photos appear to be completely underutilized within tertiary or higher education settings, highlighting an area of teacher education that deserves greater examination to enhance teaching and learning, and development of professional practices.

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Photos offer many advantages however both teachers and students need to understand how to utilise photos within an academic setting; they need to become more visually literate to make the most effective use of this everyday tool.

Research Aim and Questions.

The purpose of this study was to examine ways in which photos are currently being used within higher education institutes to enhance teaching and learning. The study sought to gain an understanding of how photos could be used further by exploring the implications for teachers. It sought to identify key factors in order to encourage a more effective use in the future.

The research questions therefore were:

- In what ways are photos currently used within the higher education classroom in order to aid teaching and learning?
- How can photos be utilised further by teachers within the tertiary classroom in order to assist students' engagement and knowledge development?

Methodology

This research project was a qualitative study, with an interpretivist approach which was conducted in a large ITP in New Zealand. The research aimed to explore ways in which photos were currently being used within a higher education institution and the reasons behind the use. The central aim of this study was to gain an appreciation of the benefits of using photographs, and was largely concerned with individual participants and with a desire to understand their experiences. The research was naturalistic, whereby the research took place in a natural context with no attempt to manipulate the situation (Robson, 2002). I wanted to gather data relating to a group of teachers' experiences of using photos, and their views associated with doing so. Constructivists contend reality is socially constructed through individual experiences, and is equated with qualitative methods (Grant & Giddings, 2002). To this end, following ethics approval, I started with the experiences of teachers and endeavoured to gain multiple perspectives, which was consistent with constructivist research.

Data Collection

Consistent with qualitative research, this study gathered data from multiple sources. A range of approaches were used to gain triangulation. Triangulation of data is important to ensure reliability of data gathered, by establishing themes based upon a number of differing sources (Creswell, 2014). The following methods were employed.

Surveys. Surveys are seen as a convenient way to collect data, at a low cost and within a short amount of time (Creswell, 2014). An online survey was used to gain a wide snapshot of use within the ITP. The survey comprised of 23 questions made up of a variety of question types. The survey was distributed via research leaders to the wider academic staff members. Upon completion of the survey timeframe 31 responses from seven centres within the ITP had been received. Six of these respondents indicated a willingness to be involved further within the research.

Interviews. Semi-structured interviews were conducted with each teacher individually who indicated a willingness to continue with the study. Interviews are described as guided conversations allowing for exploration of a particular topic or experience (Charmaz, 2006). Semi-structured interviews are useful tools when trying to gain understanding about people's views and thoughts on a particular subject, giving interviewers scope to add more questions throughout the interview, providing flexibility (Robson, 2002). Interviews were recorded and later transcribed.

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Photo elicitation. Consistent with the focus of this study, photos were used as part of the interviews in order to gather data. The use of photos as a form of data collection may produce useful data and shed light on aspects not already discussed, helping the formation of understanding and sharing of emotions, while breaking down barriers between researcher and participants (Harper, 2003). Teachers were asked to bring to the interview any photos they had used in their teaching and were asked to discuss these further.

Observations. Observations of teachers' classes were conducted to gain an insight into their current use of photos. Observations are useful when the prime motive is to explore what is happening in a situation, allowing researchers to have, and record, a first-hand experience (Creswell, 2014). Field notes were taken on an iPad along with photos which were used later as evidence and as a memory prompt. Informal interviewing of the students was conducted during the observations. In the case of an online teacher, screenshots of class discussions were taken.

Participants

From the 31 survey responses, six teachers indicated their willingness to further participate with the study. The six participants came from a range of teaching disciplines as shown in Table 1 below.

Table 1: *Participant details*

Pseudonym	Teaching discipline	Teaching Context	Programme level	Teaching experience
Andrew	Engineering	Online/Face-to-face	Degree level	10+ years
Harry	Technology	Online	Degree level	5-9 years
William	Teacher training	Face-to-face	Level 1-3	10+ years
Theo	Trades	Face-to-face	Level 1-3	5-9 years
Roxanne	Education	Face-to-face	Degree level	- 4 years
James	Language	Face-to-face	Level 4	10+ years

Analysis of Data

Analysis of data was consistent with the Grounded Theory approach as described by Charmaz (2006). In keeping with grounded theory, data analysis occurred throughout the data collection process. Immersion in data resulted in discovery of patterns, themes, and interrelationships meaning that resulting categories were 'grounded' in data (Charmaz, 2006). While immersing myself in data I went backwards and forwards between stages of analysis, meaning analysis did not occur in a linear fashion. It is believed the moving backwards and forwards between data is useful for stopping researchers feeling overwhelmed. Recordings of interviews were transcribed and observations recorded. These were read numerous times with memo writing and coding occurring during this process. Visual strategies were engaged such as colour coding in order to help group emerging themes.

Literature Review

Influential and pertinent learning theories were examined in order to outline relationships between the use of photos and good teaching along with pedagogical beliefs widespread in New Zealand. Additionally, literature relating to the use of photos in higher education was reviewed as seen below.

Higher Education in New Zealand

Within New Zealand's higher education system there is an emphasis placed on social and situated learning, and relationships between people and the environment (Brockbank & McGill, 1998). Social constructivism focuses on learning as a collaborative process which involves active construction of shared understanding. This principle is strongly influenced by Vygotsky's social constructivist beliefs whereby there is a belief that learning is a result of social interaction. Vygotsky's (1978/1997) theory of Zone of Proximal Development (ZPD), links to collaborative learning. Within his ZPD he contends learners have an actual level of development where they are currently, and a potential level of development which he maintains is the learner's ZPD. Vygotsky argues that teachers need to target activities and strategies within the ZPD by encouraging collaborative learning, modelling the tasks and making the purpose and contexts of tasks clear. There is a clear opening for photos to aid modelling and scaffolding of tasks.

Closely related to Vygotsky's ZPD is the concept of scaffolding, which refers to steps taken in order for learning to happen. It is believed that for learning to take place there needs to be social interaction as it is within these environments that learning occurs (Bruner, 1978). Scaffolding refers to the purposeful steps taken by a parent or teacher to help develop learning. Scaffolding is a temporary framework of help, aimed at assisting learners to complete tasks independently.

The concept of Ako, based on New Zealand Māori pedagogy, aligns with Vygotsky's and Bruner's learning theories. Ako, promotes social relationships between teachers and students, respecting and valuing the knowledge they bring with them and building on shared knowledge. Ako is described as the practice of both teaching and learning within a caring and inclusive environment. Ako portrays a holistic view of learning based on spiritual and emotional well-being in addition to cognitive learning (Pere, 1982; Keown, Parker, & Tiakiwai, 2005). It is focused on building relationships between teacher and student where both learn from each other in a reciprocal manner.

Taking the notion of constructivism one step further, Biggs and Tang (2007) discuss the concept of constructive alignment, whereby there is a belief that students learn by doing, with an emphasis on "learning and alignment in the design of teaching and assessment" (p.52). They focus on the role of teachers in fostering constructivist educational activities. In order to provide a supportive learning environment, teachers must ensure Intended Learning Outcomes (ILOs) are central to planning, with teaching activities and assessments carefully and deliberately aligned with the ILOs. Within a constructively aligned programme, teachers are responsible for providing a learning environment that supports activities learners participate in, which in turn supports their achievement of the ILOs (Biggs & Tang, 2007).

Using Photos in Higher Education

Benefits of use. Within the literature there appeared to be a range of benefits for using photos as a higher education teaching tool. With an emphasis on active learning principles, it is vital students participate and engage in learning. Table 1 below outlines some of the benefits recorded for using photos in the classroom.

Although there appears to be considerably less literature relating to photos within assessment specifically, suggesting a need for further research, there were some benefits noted (Munakata & Vaidya, 2012; Kurtz & Wood, 2014). Photographs used within presentations and photo-essay assessments are welcomed by students, and aid the reduction of fatigue (Fanning, 2011). Fanning commented that students found them to be "a welcome break from the traditional essay" (p.185). He reports the inclusion of photos

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is especially useful for English as Additional Language (EAL) students, allowing them to become familiar with local examples relating to theory within exams.

Benefit	Author
Increase student engagement	e.g. Sandars & Murray, 2009; Power & Morgan, 2010
Empower and motivate students	e.g. Sandars & Murray, 2009; Kates, Byrd, & Haider, 2014; Cook & Quigley, 2013
Increased student enjoyment and creativity	e.g. Schell, Ferguson, Hamoline, Shea, & Thomas-Maclean, 2009
Encouraged collaborative learning	e.g. Dongre, 2011; Power and Morgan, 2010; Duncan-Howell & Lee, 2007
Encouraging critical thinking	e.g. Cook & Quigley, 2013; Kates, et al., 2014
Consolidating learning	e.g. Schell, et al., 2009; Cook & Quigley, 2013; Power & Morgan, 2010; Fanning, 2011
As a reflection tool	e.g. Fanning, 2011; McConnell, 2014; Harvey, et al., 2012
Bridge gaps	e.g. Dongre, 2011; McConnell, 2014; Harvey, et al., 2012

Table 1: *Benefits of using photos*

Sources of photos. There is an increase in, and preference for, the use of students’ own photos (student-sourced) with the majority of the literature encouraging students to take their own photos for activities rather than using teacher-sourced photos. This aligns with Ako, and social and situated theories of learning, where emphasis is placed on tapping into students’ prior knowledge and the sharing of knowledge. The increase in using students’ photos is additionally linked to an increase in accessibility of cameras, which has impacted the use of visuals within classrooms (Duncan-Howell & Lee, 2007).

Issues with using photos. While there are multiple benefits put forward for using photos within higher education classrooms, there are also issues needing to be acknowledged. However, there were few limitations discussed in the literature (e.g. McConnell, 2014; Power & Morgan, 2010; Munakata & Vaidya, 2012). The most commonly occurring limitation centred on time required for planning when using photos, for both teacher and student (Das, 2012; Given, Opryshko, Julien, & Smith, 2011). This highlights the need for clear project guidelines, which can be a complex and time-consuming task.

It is apparent that photos do not appeal to all students. Taylor (2002) and Das (2012) discuss students’ apprehension and self-consciousness with using photos and lack of engagement due to lack of expertise. Johnson et al. (2011) as a result of their New Zealand based study conclude “not all students enjoy using technology as it challenges them to conceptualise new and different ways of learning” (p.509). They argue the need to encourage student engagement through more teacher professional development and training, cautioning for teachers to remain encouraged using photos, “there must be support for innovative e-learning pedagogy so that it is not considered a time-consuming ‘add on’ to lecturers’ work, but is a valued component of tertiary teaching” (p.510).

Increased visuals within our world are changing what it means to be literate. No longer is literacy just relating to the reading of texts; rather, it should now encapsulate the reading and use of visuals (Bleed, 2005). Hattwig, Bussert, Medaille, & Burgess (2013) in their report on visual literacy (VL) standards in higher education in USA highlight vast arrays of definitions of VL, suggesting the most recent definitions “typically refer to an

individual’s ability to both analyze and produce visual materials” (p.63), highlighting an interpretive and productive component to VL. Of concern, Rourke and O’Connor (2012) maintain many academics cannot agree upon a definition of VL skills or how these should be taught. They offer this lack of delineation as a reason it has been neglected in higher education and propose it is indeed educators’ responsibility to “develop students’ comprehension skills of visual material just as we are committed to developing their verbal and written skills within the discipline” (p.212).

Findings

Reasons Photos are Being Used

The data revealed many ways in which photos were currently being used. The following discussion outlines some of these benefits and issues and is supported with three vignettes, which give examples of teachers’ varying experiences using photos.

Survey overview. From the survey results 48% of respondents indicated that they used photos, with 39% stating that they sometimes used photos, and 13% indicated that they did not use photos. Of those who indicated that they used photos, their reasons for using photos and their frequency of use can be seen in Table 2 below.

Table 2: *Reasons for use*

Reason	+ Weekly	Once a week	Once a month	Once a semester	More rarely	Total
Introduce concepts	5	4	9	3	3	24
Promote discussion	4	7	9	1	1	22
Promote critical thinking	1	7	6	4	3	21
Promote creative thinking	2	4	7	3	4	20
Aid reflection	2	2	8	4	5	21
Visual appeal	7	7	6	3	1	24
Light-hearted change	3	7	6	1	4	21
Bridge language barriers	2	8	3	0	10	23
Bridge cultural gaps	2	4	4	4	8	22
Other	2	2	1	0	1	6

Memorability. Teachers felt that photos provide students with a visual trigger to remember and recall more easily than just words. Roxanne commented on the power images carry, as images were able to engage learners emotionally and enabled the story to be remembered. Likewise, James highlighted ways photos increased memorability by evoking emotions, resulting in increased participation and motivation.

Providing for visual learners. Some teachers perceived their students as visual learners, highlighting that photos allowed teachers to provide for this form of learning. Many examples were observed for example Andrew used photos to arouse students’ interest encouraging them to think about aspects of their field of study, linking discussion to prior experiences and future workplace.

Promoting discussion and debate. Benefits of photos to prompt discussion and debate between students, in order to further motivate, while encouraging understanding and learning were highlighted. The complexity of discussion varied between teachers, from basic encouragement of quick conversation, to using photos to promote in-depth debate, and critical thinking surrounding potentially sensitive and controversial topics. Roxanne expanded on one example where she used emotions evoked by a photo of a lady with a ta moko in a risqué pose to encourage dialogue and critical thinking.

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Ako-Shared learning. Teachers emphasised ways photos encouraged a sense of ownership of learning, and fostered building of Ako relationships, beneficial in two areas in particular: online environments, and when language barriers were present. Sharing of knowledge and learning within a collaborative community of learning is pivotal to Ako and social constructivist theories of learning. Andrew, Harry, Roxanne and William used photos to record collective moments, which could later act as triggers to help students recall their feelings and discussing it in a narrative, building upon their joint experiences.

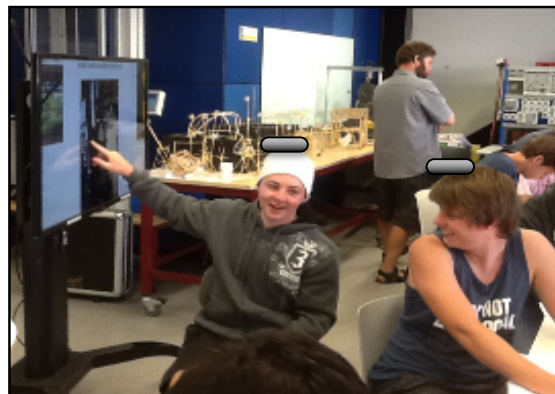


Figure 1: *Emotional engagement*

Bringing the real world into the classroom. Teachers emphasised that photos provided them opportunities to link students' learning to the real world, providing more relevance for students and offering an opportunity to link learning to future workplaces, all while maintaining student engagement as can be seen in Figure 1 above.

Vignette 1 - Andrew: A positive experience

While interviewing Andrew about his use of photographs, and observing his classrooms, it was difficult not to be enthused by his experiences.

During the second observation, Andrew's class of 60-80 students was assigned a task to complete. Andrew had changed the assessment from previous project-based evaluations to an in-class group-task, so was able to compare between the two assessments. Students were asked to take photos of objects around the campus linking them to Learning Outcomes of the Module (e.g. 'Demonstrate an understanding and apply fundamentals of statics, dynamics and mechanical energy concepts'). They had to create questions and answers relating to photos that demonstrated the Intended Learning Outcome (ILO) and present them on an online Mahara ePortfolio template. Each group's project became a resource for all students.

"I wanted to immerse them into the learning outcomes...but also share it with everyone else too. The students were engaged and I thought they were right into it. I think they saw the relevance of what they were doing which is really how you build that engagement."

The task was scaffolded prior to assessment, with students exposed to Andrew's modelling of photos within classroom tasks, and with students trialling a similar task during the prior lesson.

"From my observations I think they were pretty well prepared for it."

During follow-up discussion, Andrew commented on how pleased he was with the assessment and engagement of students throughout. He commented he was still

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very much in the beginning stages and was already looking at changes for the future, which appears to be indicative of his reflective practice. Andrew remarked he was lucky to have experience of using photos to help him create these activities. He explained that once he had come up with the idea he just had to fit it in with ILOs. He then completed the task himself to make sure everything worked, taking him approximately three–four hours planning time. Engagement and enthusiasm surrounding this assessment was evident with students making the following comments:

“A pretty cool assessment.” “It makes it way more interesting than just a drawing. It makes more sense as it’s real.” “We can learn from each other as we don’t have time to research it all ourselves.”

A positive experience for all.

Building confidence. Teachers discussed ways photos fostered confidence and created ownership for students, giving students a sense of belonging, and building self-esteem. Roxanne explained how she used photos of a shared experience to encourage students’ sense of belonging by printing them off and displaying them on the classroom walls. Students appeared to have an innate understanding of how photos could support them to build their confidence. One student in James’s class started a presentation by saying “[t]oday I would like to begin with a picture” and then went on to ask other students what they thought of the picture, stimulating discussion (Figure 2 below). Students reported that they used photos to help them remember, and to make their story clear, which helped to calm anxiety.

Stimulating critical thinking. Underpinned by Māori pedagogy, Roxanne clarified how much of her teaching centred on culture and diversity, and how encouraging debate and discussion surrounding controversial photos could stimulate deliberation concerning subjects that would otherwise not be examined. Roxanne explained how she presented photos that challenged students’ existing knowledge and assumptions or ‘single stories’ they might have.



Figure 2: *Using visuals to build confidence*

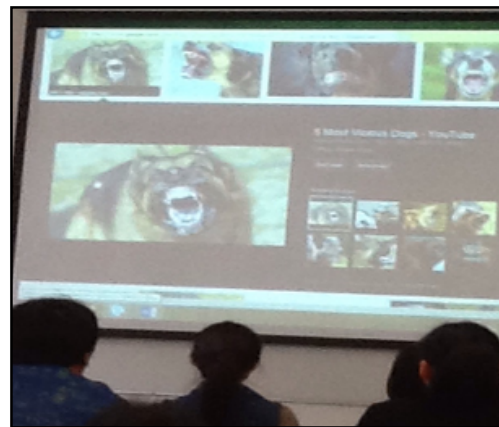


Figure 3: *Explaining concepts*

Bridging gaps. Teachers emphasised the use of photos to help bridge linguistic, knowledge, and cultural divides. James discussed benefits of bridging linguistic gaps where English language learners were concerned, which was demonstrated when James explained to students the concept ‘looks dangerous’ by sourcing a photo of a growling dog, from the Internet, to help students’ gain meaning (Figure 3 above). The picture gave

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timely confirmation of the concept. Likewise, a student from a non-English speaking background within Theo's class mentioned the real value of using photos to help bridge academic language gaps.

Assessment. The teachers deliberated benefits of photos for assessment purposes, by providing concrete, summative evidence for students' learning and providing evidence for formative assessment prompting reflection and recall. Roxanne, William, Harry and Andrew all provided examples of using photos as clear and efficient ways of recording evidence of learning which Andrew contended were especially useful in large classes.

Vignette 2 - James: Could, but he doesn't.

James, an English language teacher who freely admits he does not use photos to their full potential, appeared to be bemused as to why this was often saying, "I could - but I don't".

James is an experienced teacher, having been teaching English since 1997. James wonders if one reason why he does not use photos is that he considers himself to be 'an aural kind of person' rather than visual.

"So I could be using photos for this sort of thing but I don't. I'm not a hugely visual person myself so I think that possibly it's just I've got those habits, what kind of works for me and kind of ignoring the students."

James acknowledges his students are more visual learners and many of them are very artistic. While observing his class, as mentioned above, I found it interesting that all students used a photo or visual to support their presentation, demonstrating how visual his students are, raising questions surrounding why James does not utilise photos further.

James offered suggestions on how photos could be utilised more for social interaction, although again acknowledged he did not do this. Although James mostly works from standardised workbooks, which are littered, with photos, he explained he does not even register many photos while he is teaching, nor does he direct students' attention to them.

"I don't even recognise some of these pictures. I think when I pick up the book I don't even really look at them. I don't really draw the students' attention to them either."

While looking through the book James suddenly showed me one photo he remembered talking with his students about, and commented he only did so because the teacher's book said to. Photos do not register in James's teaching toolbox. James remembered a maths test he did when younger. He explained how he completed all questions, handed it to the teacher who then commented he had not actually answered all the questions. James was puzzled until he realised it was a question relating to a photo he had missed.

"That is how un-visual I am. My eyes were just not drawn to it or maybe I glanced at it but to me it was a bit of decoration. I missed the whole thing. It's stayed with me for some reason. So to me it's just a distraction."

James's experience highlights that teachers often teach the way they learn best.

Issues Relating to Use of Photos

Lack of buy-in. Teachers explained that a lack of buy-in could influence the use, and success of photos. Teachers discussed the need for students to be able to see value in

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activities. Theo posited many reasons for students' lack of buy-in, such as a lack of adequate technology, the curriculum was too content heavy, and students were aware there were no marks attached to activities, however thought must be given to teacher buy-in also. James' attitude is indicative of teachers who had not yet embraced the possibilities. He construed one reason he did not use photos was he was not a very visual person himself and he had habits within his teaching that were difficult to break. These patterns of teaching James refers to can be linked to a lack of understanding about how teachers and students could use photos better, or a lack of time to plan for their use.

Lack of knowledge. Another theme to emerge was a lack of, both teacher and student, knowledge. Often teachers expected students to know how to learn their discipline through photos, not realising the need to teach students how to process photos to gain desired information. Teachers' use of photos did not always appear to be carefully planned, or scaffolded. Harry recognised a need for action. While he felt students at times lacked ability to learn from photos, he speculated this could be partially due to teachers' inability to draw information out of students, or to scaffold learning. Teachers raised concerns about students' lack of VL skills hindering their ability to effectively utilise photos, additionally raising questions about whose responsibility it was to help students acquire skills. William questioned whether, within this era of educational accountability, there were any agreed on VL standards at all, and if a level of VL consistency existed throughout tertiary sectors.

Time restraints. Time restraints impacting on planning of classes and resources, and the scaffolding of activities, due to heavy workloads was deliberated. While the instantaneous nature of photos is appealing and means people can source them quickly, it was acknowledged that this does take time. James saw overwork as endemic amongst teaching staff, remarking that many teachers were overextended, resulting in lack of staff morale. As a result, he felt there was insufficient time for planning lessons, influencing teachers. Additionally, Theo commented that having time to use photos was pivotal to their success as teaching tools, highlighting the need for time in content-heavy curriculums to scaffold, in order for them to be used well.

Vignette 3 -Theo: A roller-coaster ride

Theo has had a roller-coaster ride when it comes to using photos as a teaching and learning tool. Theo comes from a trade background, having been a graphic designer before becoming a carpenter, and then moving into tertiary teaching. He is self-labelled as a 'very visual person' who was recently charged with upgrading online content of a Level 4 Certificate qualification.

As part of this upgrade, Theo spent many hours adding photos and visual activities to online resources. Theo enjoys enquiry-based and project-based learning so his idea was to make online activities more interactive and real. He was enthusiastic about this project even though it was hard work.

"At the time when I did it, it was a hell of a year for me. They took me away from my fulltime teaching role and got me fulltime developing - but I really enjoyed it".

The result of Theo's year-long development was a visually inviting, interactive learning site for students to use and engage with, to support learning. The students however did not fully engage. When Theo endeavoured to get students to take photos to demonstrate understanding of the topic, he found student engagement to be minimal.

"You read how wonderful these things are but when you try to implement them, you know-the buy in-it was tough. To get teenage boys to do it - I really

struggled with them taking photos.”

The reasons Theo highlighted were lack of time, an overcrowded curriculum, and a lack of student knowledge. Theo’s four-day timetable was cut down to three days, and in doing so compounded time pressures of teaching 33 unit standards within the academic year. Theo felt students quickly became aware of activities that did not have grades attached, even if they were intended to reinforce learning. There was consequently no engagement in these activities.

“Even if you tell them, it looks all ‘official’, it looks part of the curriculum, students know. They have a second sense on exactly what they need to do and what they don’t need to do.”

Theo was disheartened as he realised unless these were a weighted part of curriculums, student buy-in was not going to happen. Additionally, he wonders if students have the knowledge to be able to use photos or take purposeful photos. He commented that visual literacy is so very important in education but often ignored, which made him wonder if he was overestimating the level required to complete activities. Theo’s rollercoaster ride continues, as, although he is adamant the project should continue, it is apparent he himself is disheartened. While thinking back about this project he concludes:

“It took me ages. I went and took all these photos. I have some fantastic images but...but...it’s too much...it’s not being used.”

Discussion and Recommendations

The first research question focused on exploring ways in which photos were currently being used. As outlined in the findings above, within our increasingly visual world, it is undeniable that photos can be utilised to enhance learning, however, it has become equally apparent this does not just happen. Unless there is careful planning and consideration given by teachers, students will not proceed through the open door and learning will not occur.

Huakina: Using Photos to Enhance Teaching and Learning

It is evident that an increased knowledge and understanding of how photos could be used in order for potential benefits to be effective within classrooms is necessary, signifying the need for further professional development of teachers. The following discussion comes under the umbrella term of ‘Huakina (te tatau)’ – to open the door, chosen for its poignancy in reflecting the function of photos in opening of the door to the emergent themes of: motivating students, Ako-Shared learning, building confidence, building knowledge, and assessments. Key considerations have been identified for the use of photos to enhance teaching and learning.

Illustrative and interactive use. It is believed photos can be used in an illustrative manner, illuminating concepts through their visual appeal, clarifying ideas, and bringing light-hearted breaks to students. Importantly, it was established that photos could also enhance a unique type of deeper, interactive learning. The use of a series of planned, open-ended questions, focused on learning objectives, has emerged as an effective tool, beneficial in encouraging interactive use of photos, which fosters deep level learning. Similar to Walter, Baller and Kuntz’s (2012) open ended template around the acronym PHOTO, I have developed a similar heuristic acronym HUAKINA, demonstrating how teachers can take relevant key words and create a series of open-ended questions (Figure 4 below).

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<p>H = What do you see when you first view this photo? U = Describe your thoughts when YOU look at this photo. A = CAn you think why I (you/peer) might have chosen this photo in particular? K = What linKs can you make to (topic)? I = In what situations do you think others might feel similar/different to you? N = WheN have you seen/felt something similar? A = What Are the implications for your future practice?</p>

Figure 4: *Huakina – Open-ended questions*

These questions require the observer, and the facilitator, to progressively think in more depth about the subject, providing scaffolding for their learning (Bruner, 1978). The questions conclude by requiring a transfer of knowledge to future practice/work situations. Additionally, they contribute to a reduction in planning time, as they provide the teacher with a heuristic that can be used in a wide range of teaching situations, becoming a useful part of the teaching repertoire. With a series of questions such as these, students are guided through a learning cycle similar to the reflective cycle, with photos providing the concrete experience and questions guiding observers through the stages of reflective observation, abstract conceptualisation and active experimentation stages (Kolb, 1984).

Enhancing critical thinking. Central to social constructivist views, photos were found to stimulate discussion, debate and reflection which fostered students' critical thinking. Teachers provided examples of interactive use of photos which afforded students opportunities to develop knowledge and critical thinking in keeping with previous research (Schell et al. 2009; Walter et al. 2012). Examples provided by Harry and Andrew highlighted the benefits of carefully planned activities that were aligned with ILOs and assessments in keeping with constructive alignment views (Biggs & Tang, 2007). Through careful planning students were able to work collaboratively to construct their own knowledge through deep learning in accordance with Ako and social constructive approaches.

Building relationships: Ako. The very essence of photos encourages a collaborative, shared learning framework underpinned by Ako and social constructivist beliefs. It is realised that the use of photos enhances student engagement and motivation through the emotional connection and their ability to bring the real world into the classroom (Dongre, 2011; Duncan-Howell & Lee, 2007). The research ascertained there were real benefits for student driven photos being used through their propensity for emotional engagement. When students are encouraged to use their own photos it can promote ownership of learning and nurture an environment of reciprocal teaching and learning, which motivates and engages students. Strongly connected to emotional engagement was the reciprocal nature of Ako, where students were encouraged to take and use their own photos, resulting in real benefits for construction of knowledge. A framework such as HUAKINA allows students to justify their photo choice, and encourages cohort to find a rationale for each other's photos, creating a shared knowledge.

Huakina: Planning for the Use of Photos

This section addresses the second research question, looking at ways in which photos can be utilised further by teachers within the tertiary classroom to assist students' engagement and knowledge development.

Careful planning. The outcome of this study established many ways in which photos could be used better in the future. It was determined that photos did not eliminate the need for teachers to plan lessons carefully, rather the study highlighted need for teachers to ensure there was constructive alignment between ILOs, learning tasks and assessments.

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Failing to plan carefully could lead to failure to engage and complete as was suggested by Biggs and Tang (2007). Teachers, and institutions, need to prioritise time and professional development to enable teachers to plan for learning to happen by the inclusion of open-ended questions. This is an area requiring consideration from institutions, as time-stressed teachers are not spending time planning sufficiently to ensure their 'good' teaching promotes 'good' learning.

The research highlighted need for careful planning that includes scaffolding of tasks. In keeping with Bruner's (1978) views on scaffolding, it was noticeable to see benefits to learning and engagement when tasks were scaffolded and modelled as demonstrated by Harry and Andrew. Crucial to their success was understanding that photos did not eliminate the need for careful scaffolding and modelling in order for students to complete the tasks; rather it highlighted that scaffolding must be viewed as a central part of teaching and not a time-consuming extra.

Model of use. There were examples provided of carefully planned tasks, which demonstrated sound knowledge of teaching and learning principles. These displayed detailed planning, careful scaffolding, constructive alignment between ILOs, activities and assessments, and tasks that required interactive collaboration between students, demonstrating Ako or reciprocal learning. These tasks mirrored pedagogical beliefs of social constructivist approached to learning. Figure 5 below provides a visual diagram of the complexities involved in planning for interactive use of photos in encouraging a sharing of knowledge and deep level learning.

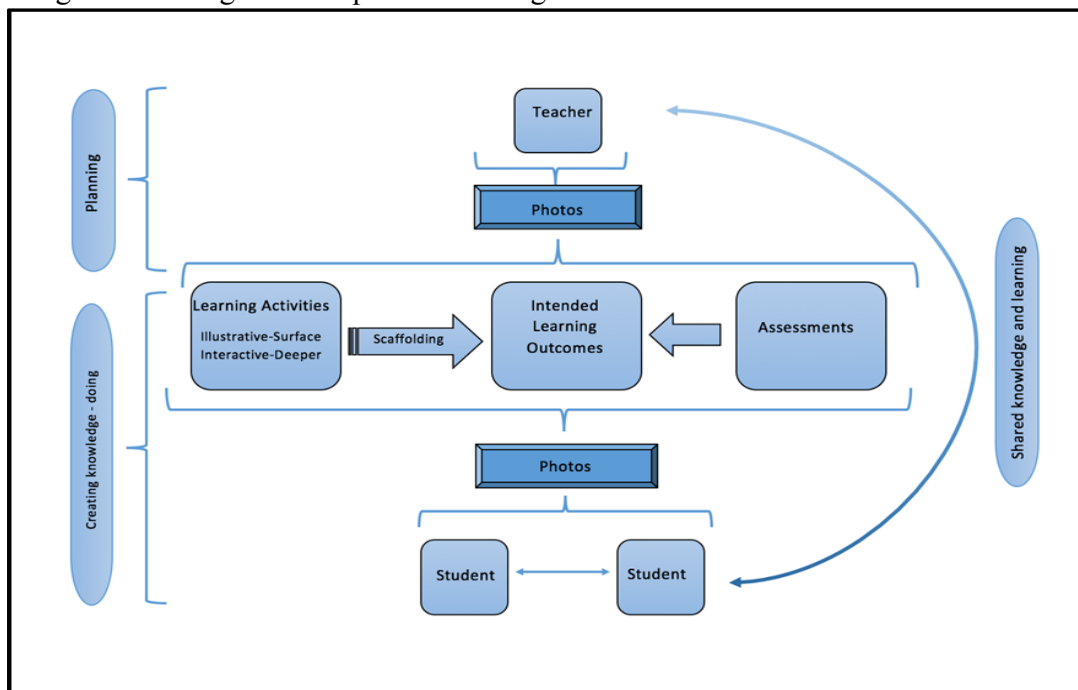


Figure 5: *A model of use*

Increase in knowledge. Although we live in an increasingly visual world, it does not automatically prepare us to be able to critically engage with, reflect on, or use photos effectively, highlighting the need for visual literacy (VL) standards within higher education. VL is important in order for photos to be capitalized on. Consideration should be given to ensuring clear guidelines are delineated as to what VL actually looks like. It ought not be taken for granted that just because photos are such a huge part of our lives that we know how to utilise them to stimulate learning. Recognition of photos as part of a universal language needs to be considered. Additionally, it is evident that there is a need

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for teachers to build their own VL in order to build students' VL. Bleed (2005) concurs suggesting that VL must be a focus in higher education as students and teachers need to have the ability to interpret and communicate ideas and concepts visually. More professional development for teachers is required to foster both teacher and student VL with the same impetus being placed on VL as any other literacy skills.

Conclusion

The primary purpose of this study was to investigate teachers' current use of photos in tertiary contexts and to look at ways in which they could be used further to enhance teaching and learning. To this end, the findings from this study provide valuable evidence that there are considerable benefits in using photos to enhance students learning and engagement. Results point to pedagogical implications for teachers, suggesting there is need for teachers to have increased awareness of careful planning and scaffolding for teaching, in order to get the most from their inclusion of photos. More professional development is required in order for teachers to truly benefit from the boundless potential photos proffer. Finally, thought must be given to the establishment of clear visual literacy standards for tertiary level students.

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