STUDIA UBB PHILOLOGIA, LXIV, 2, 2019, p. 61 - 72
(RECOMMENDED CITATION)
DOI:10.24193/subbphilo.2019.2.05

A REVIEW OF SCREEN CAPTURE TECHNOLOGY FEEDBACK RESEARCH

RUSSELL STANNARD[1]

SOCIAL SCIENCES: education, communication studies
LIBRARY AND INFORMATION SCIENCE: education and training
ECONOMY: ICT information and Communications Technologies

ABSTRACT. ***A Review of Screen Capture Technology Feedback Research.*** Screen capture technology (SCT) is one of the most widely used technologies in teaching and learning. SCT allows the user to record the screen of their computer as if a video camera was pointed at it. Anything the user does on the screen is recorded as a video and their voice is also recorded. It is principally used to create learning assets. For example, a teacher can record themselves talking over a PowerPoint presentation or a graph and then share the resulting video with students. However, the same technology can be used to provide feedback on student's written work. It is possible, for example, for a teacher to open a student's written work onto the screen of their computer, mark the errors and problems with the work, turn on the SCT and record themselves working through the student's work and providing feedback. The resulting video can then be sent to the student. The students can play back the video and see their teacher correcting their paper and they can also hear their teacher's commentary. This idea has been quite extensively researched and has been enthusiastically received by both students and teachers. This paper attempts to summarise some of the findings from the growing body of research, much of which have been connected to the topic of English Language Learning. It also suggests possible directions for future research.

Keywords*: feedback, reflection, dialogic feedback, feedback cycle, audio feedback, engagement, 21st century skills.*

REZUMAT. ***O trecere în revistă a cercetării asupra feedbackului din perspective tehnologiei de tip „screen capture”.*** Tehnologia de tip „screen capture" (TSC) este intens utilizată în procesul de predare-învățare. TSC îi permite utilizatorului să își înregistreze ecranul calculatorului ca și cum ar

[1] **Russell STANNARD** is a former British Council ELTons winner and a NILE associate trainer. He is the founder of www.teachertrainingvideos.com which received the prestigious Times Higher Award for Outstanding Technology Idea. He was previously a Principal Teaching Fellow at Warwick University. E-mail: russellstannard@gmail.com

avea o cameră video îndreptată spre acesta. Toate activităţile redate pe ecran sunt înregistrate, acest lucru fiind posibil inclusiv la nivelul materialelor audio. Este un tip de tehnologie folosit pentru crearea resurselor de învăţare. De exemplu, un cadru didactic îşi poate înregistra materialul PowerPoint sau un grafic descrise oral şi apoi împărtăşite studenţilor în format video. De asemenea, TSC funcţionează şi în cazul în care profesorul doreşte să ofere studenţilor feedback cu privire la sarcinile scrise ale acestora. Acest lucru este posibil prin deschiderea fişierului, marcarea greşelilor prin corecturi vizibile pe ecran şi explicate verbal prin înregistrarea comentariilor din partea cadrului didactic. Materialul video rezultat de aici este, după aceea, trimis studentului în cauză. Acesta din urmă vizualizează materialul, având posibilitatea de a vedea şi auzi feedbackul legate de sarcina sa. Această inovaţie educaţională a fost dezbătută şi receptată cu entuaziasm atât de către profesori, cât şi de către studenţi. Scopul lucrării de faţă este să redea o sinteză a celor mai relevante discuţii în jurul TSC, în strânsă legătură cu cercetările în vigoare dedicate învăţării şi predării limbii engleze. Ba mai mult, lucrarea merge până în punctul în care indică posibile direcţii de cercetare în domeniu.

Cuvinte-cheie: *feedback, reflecţie, feedback dialogic, ciclul feedbackului, feedback audio, participare activă, abilităţi pentru secolul al XXI-lea.*

Introduction

Screen capture technology (SCT) allows the user to record the screen of their own computer as if a video camera was pointing directly at the screen and recording everything the user does on their screen. The user's voice is also recorded. This technology is widely used in education to create digital learning assets. For example, a teacher could record themselves talking over a series of PowerPoint slides or talk over an image, graph or table. The resulting video can then be saved and distributed to students in a variety of ways.

Much of the content included in MOOCS, distance learning courses, flipped classrooms and blended learning courses includes digital content produced using SCT. However, this same technology can be used to provide feedback on student's written work. It is possible for a teacher to open a student's written work onto their computer screen, mark areas of the work that need attention and then turn on SCT and create a recording providing feedback on the student's work. The subsequent SCT video can then be sent to the student. The students can watch and listen to their feedback and see their work as the teacher marks and highlights points.

Using SCT for feedback is not a new idea. However, there is now a growing body of research, particularly in the area of language teaching, on the

impact of this way of providing feedback. This article reviews the key research that has taken place over the last 12 years and synthesizes the findings, looking for patterns and commonalities between the various research articles. Its aim is to provide a better understanding into what impact this form of feedback may have on language learning and why it has shown to be so popular amongst students. It also suggests a few directions for future research.

Literature review

Nothing new

Studies in the use of technology to provide audio or audio-visual feedback to students is nothing new. Indeed, there are studies into the use of analogue tapes where teachers provided recorded feedback on tapes for their students to play back (Farnsworth 1974). Recorded feedback was found to save teachers time in providing feedback and was positively received by students. More recently there have been a wide range of studies into using podcasts to give feedback. Merry and Orsmond (2008) writing on the use of podcasts to give feedback in higher education wrote: "the students responded very positively to the audio file feedback judging it to be good quality because it was easier to understand, had more depth and was more personal" (Merry and Orsmond 2008, 4). Other studies into the use of providing feedback via podcasts have found similar types of findings (Olesova et al. 2011; McFarland and Wakeman 2011).

Early studies into the use of SCT to provide feedback to students tended to focus on the feasibility of the idea and the student's reaction (Stannard 2007; Brick and Holmes 2008/2010). These early studies were of limited interest to institutions and organisations, since few such organisations and institutions had access to SCT and internet speeds also limited access to the SCT videos. The growth in the use of broad band internet connections, the use of 4G as well as improvements in SCT mean it is now accessible to a general audience and contemporary feedback videos made using SCT can easily be watched on any screen device with an internet connection or even a 4G connection.

Today we have a large number of studies that have looked into the use of SCT for providing feedback to students. However, it is quite a challenge to draw any overall conclusions from these studies. This is because the flexibility of the tool means it can be used in a variety of contexts, with different types of students, studying on a broad range of courses and each providing feedback in a different way. We must remember that SCT is a tool that offers us a medium for providing feedback. It is not a prescribed system or approach to giving feedback and different teachers have used it in different ways. However, there are a number of strands that we can identify.

Clarity

We know from a whole range of studies into written feedback that students often complain that the feedback they receive is unclear, hard to read and sometimes confusing (Zamel 1985; Nurmukhamedov and Kim 2009). One thing that seems to emerge from many of the studies into feedback using SCT is that students have consistently highlighted the clarity of the feedback (Mathisen 2012; Harper et al. 2012; Stannard 2017): "The great advantage that screen capture has over written feedback is that screen capture gives a much clearer impression of what is being commented upon and assessed" (Mathisen 2012, 105). Ali (2016) found that 94% of the students thought the feedback was specific and clear and that the SCT feedback meant that the students were clear about what they needed to revise, with the fact that the feedback is both visual and oral contributing to the clarity.

Amount of feedback

The second point that comes up in almost all the studies regards the amount of feedback provided. Since the teacher is able to orally express the feedback and guidance, the feedback tends to be much more detailed (Séror 2012). Though there is some disagreement in the various papers, around 140 words can be spoken in a minute and so a five minute SCT video can provide around 700 words of feedback. Séror makes the point succinctly:

> Freed from the physical limits of a margin on a page, I also find that I can address a wider range of issues in students' texts. This includes, for example, taking a few extra seconds in a recording to comment on the overall organization of a text or taking advantage of the digital environment in which the recording is being produced to jump on screen from a student's assignment to outside resources such as a web page or course documents relevant to the feedback being offered. (Séror 2012, 111).

More recent studies have couched the argument in a slightly different way, highlighting the fact the video feedback often results in double the number of words of feedback being provided to the students in comparison with written feedback (Anson et al. 2016). This may in turn lead to a shift in the type of feedback given, moving away from a focus on surface errors like grammar and syntax to a focus on content, organisation and the logic of arguments (Orlando 2016).

How a teacher is perceived

Receiving SCT feedback from teachers seems to affect the way the students actually perceive and view their teachers. There is often the impression

that the teacher is going the 'extra mile' and doing more to help their students. This has interesting implications. In a more and more competitive environment and especially since students now often pay for their courses, the way students perceive a course is important. These two quotes highlight the point:

> There is reason to claim that through the use of screen capture as a medium of feedback, a closeness desired by students is created with their teachers. (Mathisen 2012, 110)

> Really good! It is a perfect tool to give students a personal feedback of their work. Only yesterday we talked about the comments written on coversheets of courseworks and we came to the agreement that in many cases these comments are really short and often impossible to read. A teacher working with this software however shows that he really has spent some time while looking at the students work. (Brick and Holmes 2008/2010, 340)

Personalisation

A common theme among many of the papers is that the feedback is more personalised (Mathisen 2012). This could be due to a number of reasons. Since the feedback is oral, the style of feedback tends to be more chatty and informal. There is also the suggestion that oral feedback often means that some of the feedback serves a more social function, for example through salutations, compliments, and is therefore more personal (Mann and Stannard 2017). It is common for the teacher to refer to the students' names while giving the feedback. Students sometimes refer to SCT feedback as being like a face to face meeting, which is quite interesting since in reality it is not a face to face meeting but simply a video recording (Mathisen 2012). As argued by students, "Using audio feedback is a very useful way of giving feedback. It makes me feel as if you are besides me. It is easier to comprehend what kind of idea you want to communicate to me" (Mann 2015, 162).

Type of feedback

Since more feedback can be given, the type of feedback also tends to differ. Moore and Filling (2012) found the feedback included less surface error type corrections and more tended to elaborate on points and provide specific details. Lamey (2015) made a similar point highlighting the fact that the feedback tended to focus less on spelling and grammar mistakes and more on intellectual arguments and content.

Enjoy

A number of teachers have pointed out how enjoyable the process is. Many teachers find the experience of using their voice to provide feedback frees them up, making the process more enjoyable (Harper et al. 2012). This is partly because the use of the voice allows for more complex and in-depth feedback which is not limited by the written medium. Teachers can contextualise feedback and provide more guidance on how to correct the work (Lamey 2015).

Teacher presence

One key area where SCT feedback has been highlighted as particularly significant is in the area of teacher presence (Mann and Stannard 2017). Teacher presence is particularly relevant to online courses, where the students do not actually meet their teacher. This problem of teacher presence is also exacerbated by the use of 3rd party content being included in online courses since it can sometimes be unclear who is actually delivering the course. Students can feel isolated due in part to the lack of teacher presence (Olesova et al. 2011). Screen capture can play an interesting role here since the feedback includes the teacher's voice and builds teacher presence within the course and with the students. This may be particularly relevant to fully online and distance learning courses.

Reusing the content

Most of the research has tended to focus on the perceived benefits of the SCT feedback from either a teacher or a student perspective. There is little real research into the actual impact of the feedback on second drafts or subsequent written pieces. There is also little known about how students actually use the video feedback, though a number of studies have referred to the fact that students seem to watch the videos more than once and like the control they have over replaying feedback:

> the ability to rewind and stop their teacher at will is an advantage that screencasting offers over face-to-face conferences. Indeed, with screencasting, students can access live comments without the affective stress typically associated with having their teacher present. (Séror 2012, 110)

Preference

Students' reaction to SCT feedback is generally very positive. Most of the studies show that students express a preference for screen capture

feedback over traditional feedback methods (Lamey 2015, Moore and Filling 2012). Teachers too have been positive about its possible use: "it was a very positive, personalised and motivating experience" (Harper el al. 2012, pg n/a). The preference for SCT feedback over traditional forms of written feedback is perhaps due to the clarity of the feedback:

> Students consider that the video format affords a clearer understanding of marker comments and helps avoid misinterpretations, with the visual and aural cues communicated in video significantly improving clarity and detail and reducing the ambiguity of feedback information. (Mahoney et al. 2019, 164)

The novelty of the idea must also be taken into consideration and it may be that if students were always receiving feedback via SCT videos they may feel very different (Mahoney et al. 2019).

Challenges

Technical

There are a number of problems related to SCT feedback. There are a number of technical issues related to the playback of the videos that have been highlighted in several studies (Mathisen 2012). Students find it harder to play back the videos to find specific comments and issues as they have to play through the video and find the right point (Séror 2012). It is also important to recognise that though internet speeds have increased in many parts of the world, video is not easily accessible to all students and this continues to be a major consideration in the feasibility of this approach to feedback. Teachers also need access to the technology, though there are in fact a number of free tools available.

Not dialogic

So far the use of SCT feedback has tended to focus on a rather traditional view of feedback that sees it very much as a transmission of information. So the students do their work and the teacher then comments on it and suggests improvements etc. There is little real dialogue taking place in most of the SCT feedback examples, yet it is clear that having a dialogue is important in the feedback process (Boud and Molloy 2013). It is thus advisable

> to rethink the unilateral notion of feedback from one in which information is transmitted from the teacher to the student to a bilateral and multilateral one which positions students as active learners

> seeking to inform their own judgements through resort to information from various others. (Boud and Molloy 2013, 699)

At the moment the approach to using feedback is very much a one-way experience with teachers providing SCT feedback in various forms but not really facilitating clear lines of communication with students. It would be interesting for example if the students could create their own screen capture video responding to the teachers' comments. Another alternative might be for students to respond to the video feedback by providing a written sheet that outlines what they have understood from the feedback or what action the students are planning to take after viewing the SCT feedback video. Another possibility that may to some degree make the process more dialogic is if the students actually outlined key areas where they would like feedback. For example they might hand in their written work and include a sheet where they highlight the areas they would like the teacher to focus their feedback. The teachers could then provide the SCT feedback based on the students' requirements and this, to at least some degree, would facilitate some sort of dialogue with teachers responding to the students' requests.

Using the videos

There are many questions that can be asked around how the SCT feedback is used. Henderson and Phillips (2015) have highlighted that students had difficulties in using the videos and felt anxious about how they were going to deal with the feedback. We need a greater understanding into how the students use the videos and what type of feedback they need. For example, would it be better if the SCT feedback videos provided a number of questions for the students to consider? Would it be more effective if we, say, limited the feedback to 4 or 5 key points? As mentioned at the beginning of this piece, SCT feedback is a medium and the form that the feedback can take can vary widely. There are no clear guidelines on best practice.

Not focused on improved performance

Most of the studies conducted up until now have really focused on the feasibility of the idea and the reaction of both students and teachers (Mathisen 2012, Brick and Holmes 2008/2010). What we know little about is the actual impact of the feedback. Feedback is a key part of the learning cycle and for it to be effective we need to understand its impact (Hyland & Hyland 2006). The impact of feedback can be viewed in a variety of ways but one obvious way would be to understand the number of changes made to a student's written

work in subsequent drafts. It would be hard to prove that SCT feedback has an impact on 'learning' as there are often far too many variables and other factors to consider when trying to measure when 'learning' has taken play. However, it would be feasible to compare the number of changes to the second draft of a paper and, say, compare the impact of written feedback with one group of students and SCT feedback with another group of students. Some initial studies have attempted this (Moore and Filling 2012) but much more information needs to be gathered and a more systematic approach to counting the number of corrections made in the second drafts.

Limitations of existing research

There are a number of other issues that need to be considered around the research itself. Many of the studies have been quite small scale and in most cases the teacher has been involved in the research, which can influence the outcome of the studies: "this involvement of the researcher in the feedback process may influence the data and the types of studies reported, and may also account for the high levels of marker enthusiasm for the video feedback format" (Mahoney at al. 2019, 172).

The Technology

There is a huge range of screen capture technologies available. Indeed, some are free and can be easily accessed on the internet (screencast-o-matic, available at https://screencast-o-matic.com). A number of the studies used a technology called JING (JING, available at https://www.techsmith.com/download/jing/) but this tool can create problems when it comes to playing back the videos as it does not produce standard MP4 videos that can be played back on the vast majority of devices. Here is a summary of some of the more useful and successful technologies:

	Cost	Access and tips
Screencast-o-matic	Free to use from the internet https://screencast-o-matic.com	A little tricky to use at first. You can find some excellent help videos on YouTube.
SnagIT	Free to use for 2 weeks. https://www.techsmith.com/download/snagit/ After 2 weeks the educational version costs $30	Sold and reliable. Very easy to use. You can find help videos to learn SnagIT on the internet.
JING	Free to use https://www.techsmith.com/jing-tool.html	Easy to use but limited to online storage for playback purposes. Downloaded files require special plugin to play back.

A search on Google using the terms 'Screen capture software' or 'Screen cast software' will bring up a huge number of different tools and many new tools are emerging in the market. Many of these tools are free, though most do require some sort of plugin or small app to be downloaded onto your computer. The technology is easy to use once it has been downloaded and often requires no more than one button click. In most cases videos are immediately playable as the standard output format is an MP4 file. Most teachers find this a very simple tool to work with.

Conclusions

Though the idea of using SCT to provide feedback has now been around for over a decade (Stannard 2007), it is only perhaps since 2012 that its use in a large range of contexts and institutions has been a realistic possibility. What is clear is that the idea has potential and can provide much richer and in-depth feedback to students. It may be especially relevant on distance learning courses or courses that rely heavily on online content since it facilitates teacher presence and helps build a stronger connection between the student and the teacher.

Education is undoubtedly changing with both teachers and students making greater use of video in teaching and learning. It may be that, with this shift, the use of SCT video for feedback becomes a more natural choice and will eventually become quite normalised. It would be interesting to see whether its widespread use would be so enthusiastically received by students. At the moment it may be the novelty value that is offering such positive responses in the research.

A much broader and more extensive body of research is needed including research that answers some of the following questions: (1) How do students actually use the videos?; (2) Does feedback provided by SCT videos result in more changes to second drafts on written papers than feedback provided in written form?; (3) How much quicker or longer is the process of providing SCT feedback than written feedback? Is it a more efficient or less efficient way of providing feedback?; (4) How feasible is the idea when used on large scale courses where teachers may have to deal with, say, 100 students?

BIBLIOGRAPHY

Ali, D.A. 2016. Effectiveness of Using Screencast Feedback on EFL Student's writing and perception. *English Language Teaching* 9 (8): 106-121.

Anson, C. M., D. P. Dannels, J. I. Laboy, and L. Carneiro. 2016. Students' Perceptions of Oral Screencast Responses to Their Writing: Exploring Digitally Mediated Identities. *Journal of Business and Technical Communication* 30 (3): 378–411.

Boud, D., and E. Molloy. 2013. Rethinking Models of Feedback for Learning: The Challenge of Design. *Assessment and Evaluation in Higher Education* 38 (6): 698–712.

Brick, B., and J. Holmes. 2008/2010. Using Screen Capture Software for Student Feedback: Towards a Methodology. In *Cognition and Exploratory Leaning in Digital Age: Proceedings of the IADIS CELDA 2008 conference, Freiburg, Germany*, eds. Klinshuk, D., G. Sampson, J. M. Spector, P. Isaias, and D. Ifenthaler, 339-342, http://www.iadis.net/dl/final_uploads/200818C046.pdf (accessed September 13, 2012).

Farnsworth, M. B. 1974. The cassette tape recorder: A bonus or a bother in ESL composition correction. *TESOL Quarterly* 8(3): 285-291.

Harper, F., H. Green and M. Fernandez-Toro. 2012. Evaluating the integration of Jing screencasts in feedback on written assignments. In *15th International Conference on Interactive Collaborative Learning, 26-28 September 2012, Villach, Austria*. Piscataway, NJ: IEEE, http://oro.open.ac.uk/34737/1/Evaluating%20the%20integration%20of%20Jing%20screencasts%20in%20feedback%20on%20written%20assignments.pdf (accessed January 29, 2019).

Henderson, M., and M. Phillips. 2015. Video-based feedback on student assessment: scarily personal. *Australasian Journal of Educational Technology* 31(1): 51-66.

Hyland, K., and F. Hyland, eds. 2006. *Feedback in second language writing: Contexts and issues*. New York, NY: Cambridge University Press.

Lamey, A. 2015. Video Feedback in Philosophy. *Metaphilosophy* 46 (4-5): 691–702.

Mahoney, P., S. MacFarlane, R. Ajawi. 2019. A qualitative synthesis of video feedback in higher education. *Teaching in Higher Education* 24 (2): 157-179.

Mann S. 2015. Using Screen Capture Software to Improve the Value of Feedback on Academic Assignments in Teacher Education. In *International Perspectives on English Language Teacher Education. Innovations from the Field*, ed. T.S.C. Farrell, 160-180. London: Palgrave Macmillan.

Mann, S, and R. Stannard. 2017. Using Screen Capture Feedback to Establish Social Presence and Increase Student Engagement. In *Cases on audio visual media in language education*, ed. C. Hua Xiang, 93-116. Hershey: IGI Global.

Mathisen, P. 2012. Video Feedback in Higher Education - A Contribution to Improving the Quality of Written Feedback. *Nordic Journal of Digital Literacy* 7 (2): 97-116.

McFarlane, K., and C. Wakeman. 2011. Use of audio feedback for summative purposes. *Innovative Practice in Higher Education* 1(1): 1-20.

Merry, S., and P. Orsmond. 2008. Students' Attitudes to and Usage of Academic Feedback Provided Via Audio Files. *Bioscience Education.* e-journal 11 (1): 1-11.

Moore, N. S., and M. L. Filling. 2012. iFeedback: Using Video Technology for Improving Student Writing. *Journal of College Literacy and Learning* 38: 3–14.

Nurmukhamedov, U., and S. H. Kim. 2009. 'Would you perhaps consider…': hedged comments in ESL writing. *ELT Journal* 64 (3): 272-282.

Olesova, L.A., J. C. Richardson, D. Weasenforth, C. Meloni. 2011. Asynchronous Instructional Audio Feedback in Online Environments: A Mixed Methods Study. *MERLOT Journal of Online Learning and Teaching* 7 (1): 30-42.

Orlando, J. 2016. A Comparison of Text, Voice, and Screencasting Feedback to Online Students. *American Journal of Distance Education* 30 (3): 156–166.

Séror, Jérémie. 2012. Show me! Enhanced Feedback Through Screencasting Technology. *TESL Canada Journal* 30 (1): 104-116.

Stannard, R. 2007. Goodbye to lecture notes. *The Guardian*, September 18, http://www.guardian.co.uk/education/2007/sep/18/link.link24 (accessed December 5, 2018).

Stannard, R. 2017. A Genuine Innovation in the Delivery and Form of Feedback on Student's Written Work. In *Digital Language Learning and Teaching: Research, Theory and Practice*, eds. M. Carrier, R. M. Damerow, and K. M. Bailey, 179-188. New York, NY: Routledge.

Zamel, V. 1985. Responding to Student Writing. *TESOL Quarterly* 19(3): 79-101.