COMPARING THE EFFECT ON ACHIEVEMENT, PERSISTENCE AND LEARNERS’ SATISFACTION OF USING TECHNOLOGIES TO GIVE FEEDBACK INSTEAD OF WRITING

Stéphanie Facchin, Ph. D.
Cégep à distance

11th conference of The International Test Commission

4th July 2018, Montreal, QC, Canada

Financial support of
Ministère de l’Éducation et de l’Enseignement supérieur, gouvernement du Québec,
PAREA Grant
PADRRC Grant
Feedback: what does it mean in this study?

All the information provided to the learner by his tutor, as to his academic achievements or his understanding of the subject, when correcting evaluations. It aims to improve learning, persistence and academic success.

(Facchin, 2018, p. 14)

Feedback using technologies: Other means than written to give feedback to learners (audio, video, visioconference)

\[
\begin{align*}
&b) \int \sec^2(3x) \, dx = \frac{1}{3} \tan(3x) + C \\
&\int \sec(3x) \, dx = \frac{1}{3} \sec(3x) + C \\
&\int \tan(3x) \, dx = -\frac{1}{3} \ln \cos(3x) + C \\
&\int \sec^3(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^4(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^5(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^6(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^7(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^8(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^9(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{10}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{11}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{12}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{13}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{14}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{15}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{16}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{17}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{18}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{19}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C \\
&\int \sec^{20}(3x) \, dx = \frac{1}{3} \tan(3x) \sec(3x) + \frac{1}{3} \ln \sec(3x) + C
\end{align*}
\]
Feedback levels in assignments

76,4%  
Task

20,0%  
Process

3,2%  
Self-regulation

0,4%  
Personal emotional

Facchin, S. (Manuscrit en préparation). Feedback in distance education: What’s in it for my grade?  
Empirical evidences

Written feedback: takes time, space and learners have troubles to read or to understand what it is meant

- Less time consuming
- More feedback, more personal for learners
- Facilitates appropriation because easier to understand
- Richer feedback
- More social presence feeling
- Learners more satisfied but is there an impact on academic results?
- Mixed results (no effect) and few quantitative studies with experimental design

Technological feedback:

Hypotheses

**

CÉGEP À DISTANCE
METHOD
### Mixed method

### Quasi experimental design

- Experimental group 1: audio feedback
- Experimental group 2: video feedback
- Expérimental group 3: visioconference feedback
- Control group: traditionnal written feedback

### Self-report measures at the beginning and at the end

### Activities in Moodle (Log)

- 3 sessions: Winter 2016, summer 2016, fall 2016

### 4 tutors trained to technological feedback

---

No significant differences for the control and the experimental group regarding gender and previous academic results, except for age: 23 years old for the experimental group versus 21 for the control group.

Mathematic courses

$$\lim_{x \to -\infty} 2^x = 0$$
RESULTS
Effect on achievement and on drop out rates

- Lower dropout rate (36% vs 44%)
- Higher success rate (47% vs 39%)
- Same failure rate (17%)
Significant effect (winter session)

\[ \chi^2 (2, n = 113) = 6.27; p < .05; \phi = 0.24 \]

<table>
<thead>
<tr>
<th>Group</th>
<th>Drop out</th>
<th>Failure</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experimental</strong></td>
<td>27%</td>
<td>23%</td>
<td>51%</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>17%</td>
<td>33%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Groupe expérimental
Groupe témoin

Drop out
Failure
Success
Significant differences on grades

F (1, n = 177) = 9.41, p = .01

F (1, n = 177) = 6.17, p = .01

Devoir1  Devoir2  Devoir3  Devoir4  Examen  Note au cours
83,26    84,99    82,47    80,51    74,15    70,65
75,88    83,06    80,54    74,15    70,65    67,64
83,06    80,54    74,15    70,65    57,39    55,07
Audio for success and video for dropout

\[ \chi^2 (2, n = 198) = 7.10; p < 0.05; \phi = 0.19 \]
It is a faster way to hear about your work. It really allowed me to understand my mistakes and to correct myself for the exam.

This is of course due to the fact that Devoir + is still at a young stage, but it would be nice to film the assignment and point out errors at the same time that the tutor explains the mistakes I made. So, it would be as if our teacher was next to us. (learners with audio only)

Access to feedback
Sound or image quality (Camera Ziggy)
Good Internet service
Download file rather than streaming
grades:
\[ r = -0.51, \ n = 484, \ p < 0.01 \]

\[ F(2, 481) = 49.42, \ p = 0.01 \]

Mean length
Audio
Video
Skype

04:43 (SD = 2:37)
03:35 (SD = 2:15)
05:27 (SD = 2:24)
08:22 (SD = 03:57)
Lenght and academic results

F (2, 471) = 5.41, p = .01

Dropout: 04:38 (SD = 2:23)
Fail: 05:20 (SD = 2:21)
Success: 04:26 (SD = 2:35)

Abandon = Échec = Dropout
Fail
Success

**
Time to produce and means of feedback

- Audio: 30:42 (SD = 4:02)
- Video: 24:20 (SD = 9:25)
- Skype: 58:45 (SD = 7:43)

$F(2, 536) = 148.64, p < .01$
Time to produce and academic results

- **Dropout**: 29:03 (SD = 10:34)
- **Fail**: 24:39 (SD = 8:20)
- **Success**: 28:36 (SD = 8:46)

\[ F(2, 524) = 9,93, \ p < 0,01 \]
Finally

Effect on achievement.

Difference between means: Audio more focus on the task and video may also include motivational components?

The level of the feedback?

The richness of the medium?

Does the positive effect still last (longitudinal data)?
Good practices for technological feedback

To foster listening and receptivity:

• Be brief, no more than 5 minutes
• Start with salutation
• Clearly indicate where your comments relate to
• Sum up good points and weaknesses
• End with a question to invite student to reflect
• Be natural!

To foster editing process:

• Quiet place
• Prepare your comments before starting recording
• Do not spend time on redoing your recording
• Ensure to have a good speed of Internet connection
• Keep a copy of your recording and name the file with a unique code pertaining to each learner

To foster the effect of feedback on academic results:

• Feed Up (where I am going?), Feed Back (How I am going?), Feed Forward (Where to next?) (Hattie & Timperley, 2007)
• Go further than academic correction
• Give explanations on why it is wrong and right
• Give examples
• Specify if the goals (competencies) are achieved
• Comments also have to be related to the task rather than on the motivational side only
Thank you

sfacchin@cegepadistance.ca
