‘Digital storytelling, a vehicle for reflection?’

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Abstract
The main aim of this pilot study is the question which methodology - ‘the model of Korthagen’ or ‘digital storytelling’- supports students most to reflect ‘deeply’. The results are based on a survey and an empirical research. This study took place among students in the teacher training, KATHO-Tielt, in BAKO (=Bachelor, Nursery School Teacher Training) and in BALO (=Bachelor, Primary Teacher Training). Third-year students were asked to reflect on their experiences regarding their ‘bachelor test’. To make their reflection assignments, students were asked to use two methods, namely ‘the model of Korthagen’ and ‘digital storytelling’. The analyse of the reflection assignments focuses on the question if ‘digital storytelling’ leads to more elements of ‘in-depth reflection’ than when ‘the model of Korthagen’ is used.

Keywords: digital storytelling, reflection

Conference strand: Research in lifelong learning

1. Introduction
Supposing that reflection takes a central place in curricula, is like ‘forcing an open door’. ‘Reflection’ is an important competence in higher education and students are frequently asked to reflect. (Procee, 2004) According to Mansvelder et al. (2001) ‘reflection' knows many definitions, depending on the educational paradigm that someone uses. The approach of Kelchtermans (2001) includes the idea that ‘reflection-assignments’ should reach beyond an ‘enumeration of specific situations’. Kelchtermans distinguishes ‘in-breadth reflection’ and ‘in-depth reflection’. With ‘in-breadth reflection’, he refers to a reflection that focuses on the ‘technical dimension’ of teaching. ‘In-depth reflection’ refers to a ‘personal interpretive framework’. Kelchtermans (2001) writes that only when reflection includes elements of a ‘personal interpretive framework’ (cf. ‘in-depth reflection’), it can be considered as ‘critical reflection’. Without this, reflection is nothing more than one procedure, nothing more than ‘an enumeration of concrete situations’. ‘In-depth reflection’ contains two major subcategories: ‘professional self’ and ‘subjective educational theory’.

Several methods can support a reflection-process. First, we discuss reflection as a ‘cyclic process’. The step-by-step plan of a cyclic process encourages the student to go systematically through a process of reflection. The student reflects on his own acts, experiences,… ; indicates hereby the most essential elements and then creates opportunities for further growth. The outcomes of this process are the ‘startingpoint’ of the next cycle. The ‘model of Korthagen’ (1993) can be seen as an illustration of a ‘cyclic process’.

It is less well known that (digital) ‘storytelling’ also can support reflection. Banaszewski (2005) defines ‘digital storytelling’ as

"The practice of combining personal narrative with multimedia (images, audio, and text) to produce a short autobiographical movie". (Banaszewski, 2005, p.1)
The model of Lambert (2003) is an example of an approach to use ‘digital storytelling’ in an educational context.

However, there are clear differences between these two angles. ‘Digital storytelling’ includes -by definition- not necessarily a ‘cyclic process’, whereby the outcomes are the basis for a next step. In addition, ‘digital storytelling’ put more emphasis on the narrative, the autobiographical. This isn’t necessarily with a ‘cyclic process’.

2. Hypothesis
In this pilot study we want to examine if the methodology ‘digital storytelling’ more often leads to ‘in-depth reflection’, than when students use the ‘model of Korthagen’. We depart from the following assumption

‘The use of the methodology “digital storytelling” leads to a higher degree of “in-depth reflection” than when the model of Korthagen is used.’

3. Description of Research
This pilot study took place among students in the teacher training, KATHO-Tielt, in BAKO (=Bachelor, Nursery School Teacher Training) and in BALO (=Bachelor, Primary Teacher Training). Third-year students were asked to reflect on their experiences regarding their ‘bachelor test’. The bachelor test is a graduation project where the integration of different disciplines - linked to a practical problem – takes a central place.

Based on the formulated assumption (cf. supra), we note the following research questions:
- Does students find reflection an essential part of the teacher training programme?
- Does the methodology ‘digital storytelling’ leads to more elements of ‘in-depth reflection’, than when ‘the model of Korthagen’ is used?

4. Concrete approach

4.1 Blind anonymous scoring
To avoid interferences in the analysis of the reflection assignments, (for example, because the assessors are aware of the different conditions) all reflection-assignments are make ‘blind’. Every ‘file’ gets a new ‘blind scoring number’ so that the original conditions can be reconstructed afterwards.

4.2 Approach analysis documents
This pilot study focuses on the number of elements that refers to ‘in-depth reflection’. We have to be able to indicate whether or not an element in a reflection assignment refers to a theoretical concept. Therefore a ‘clear description’ (a code, an indicator) is necessary. (Van Buuren et al., 2003)

To this end, several indicators are formulated; we assume that a higher number of ‘references’ to these indicators, is the prove of a higher degree of ‘in-depth reflection’. These indicators1 are based on the descriptions that Kelchtermans (1993) uses. Kelchtermans distinguishes two major subcategories: ‘professional self’ and ‘subjective educational theory’. ‘Professional self’ is further divided into self-image, self-esteem, job motivation, future perspective and task perception.

In his research, Kelchtermans also refers to ‘job satisfaction’. Because the respondents are students, whom most likely do not have a real ‘professional’ experience, this element is not included in the further analysis of this study.

All assignments were analyzed by the same two people.

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1 The students were not told that their reflection assignments are used for research; they also didn’t know the indicators which are used at the analysis. Obviously, lecturers were informed of the research, but they had no information about the indicators which are used at the analysis.
The granting of a score departs from the STAR\textsuperscript{2} methodology (see selection and assessment). In summary, this means that the assessors shortly motivate orally each score; based on this argumentation -and not, for example by taking the mean of the scores- both assessors together decided if an item scores or not.

4.3 Entering into SPSS
After analysis, the documents are linked to their ‘original’ conditions, so that ‘reconstruction’ is possible. Next, the results are puted into a SPSS-file. Finally, we start further analysis on the basis of the data-file in SPSS.

5. Results
Given the approach, the results are of a qualitative and quantitative nature.
The total population consists of 20 respondents, of whom there are 10 BALO students and 10 BAKO students, with just one male student (in BAKO).
The survey shows that 75\% of the students agrees with the idea that ‘reflection is an essential element of a teacher training programme’ (n = 20, missing = 0); 40\% is BALO-student, 35 \% is BAKO-student. In order to determine whether the differences in scores between BALO/BAKO students are significant, we used a variance analysis with a non-parametric test (Mann-Whitney U test). However, we could not find significant differences between BAKO/BALO. (U = 45, p> .05).

Students mentioned they find reflection a good methodology to encourage themself to try new things, reflection as a way to reflect on their own actions (see teaching styles, relation with the children,….). Several students also mentioned that reflection is essential for them, but they see no need to ‘write’ or ‘visualize’ these reflections; they emphasise that reflection don’t have to be ‘time-consuming’ to be effective.
Furthermore, it appears that 25\% of the students are only ‘partially’ agree with the idea ‘that reflection is an essential part of a teacher training programme’. (no one is ‘completely disagree). The most recurring argument is that reflection is important, but that a ‘written report’ is not necessary.
Conclusion, it seems that we can assume that students of a teacher training programme find reflection important, if the assignments are sufficient efficient.

The results of the survey shows us that half of all students prefer ‘digital storytelling’ as a methodology to reflect. Further analysis shows us that 70\% of the BALO students - compared with 25\% of the BAKO students - expressed a preference for ‘digital storytelling’. (n = 18, missing 2). Because the results of a Chi-square test tells that more than 20\% of the expected frequency is of less than 5; we check the significance of this result by using the ‘Fisher's Exact Test’. This test shows us that there is no significant correlation between ‘BAKO/BALO’ and ‘preferred method’ (df 1, N 18), p> 0.05.
The two students who has no preference about the choice of methodology to reflect (= 2 BALO students, cf missing), say the choice depends on the specific situation.

A further analysis shows that reflection assignments, which were built with the ‘model of Korthagen’, have a higher number of elements that refer to ‘in-depth reflection’ than if students use the methodology ‘digital storytelling’ (absolute: 40 compared to 11).
We also see that the median is respectively 2 and 0.5, the mean 2 and 0.55.
It is striking that the ‘mode’ for both methods (= the ‘model of Korthagen’ and ‘digital storytelling’) is 0. The difference between mode and mean/median indicates an ‘unequal’ distribution of scores. This means that a large proportion of the students have no elements of ‘in-depth reflection’ in their reflection assignments (this for both methods; 35 \% cf. the ‘model’ of Korthagen’, 50\% cf. ‘digital storytelling).

\textsuperscript{2} STAR stands for Situation, Task, Action and Result (Lowyck, Callens & Peters, 2006).
Further analysis of the number of elements that refer to a 'in-depth reflection', shows us that when students use the 'model of Korthagen' the subcategorie 'professional self' scored more than 'subjective educational theory' (average score of 1.15 versus 0.85; 23 and 17 in absolute figures, total score 40). This is hardly surprising, because the score of 'professional self' is the sum of five 'indicators' (= self-image, self-esteem, job motivation, future perspective and task perception), this increases naturally the chance that 'professional self' is scored.

We didn't find a significant correlation between the two scores. This means that a higher score for 'professional self' does not automatically affect the number of scores of 'subjective educational theory'. (used statistics: spearman's Rho, both variables are of the interval level, but one of the variables has no normal distribution; rho 0,299, p> 0.05).

When we compare the score of 'subjective educational theory' with the indicators of 'professional self' separately, we see however that 'subjective educational theory' has the highest score.

After further analysis of the indicators who fall under 'professional self', we see that 'self-image', and next 'self-esteem' have the highest score, then 'future perspective' and 'task perception'. No student scores on the indicator 'job motivation'.

When we checked this with the methodology 'digital storytelling', we see again that more elements who refer to 'professional self' can be found, than elements who refer to 'subjective educational theory' (mean: 0.35 versus 0.2; 7 and 4 in absolute figures, total 11 elements).

Due to the fact that 'professional self' is the sum of various indicators this is also not surprising to us. Again, we could not find a significant correlation between the scores with 'subjective educational theory' and 'sum professional self'. (r -0,288, p> 0.05; in a normal distribution)

When we compare 'subjective educational theory' with the various indicators of 'professional self' separately, we notice that 'subjective educational theory' has the highest score. Further analysis of 'professional self' shows us that 'self-esteem' scored more than 'self-image'; 'task perception' and 'future perspective' scored only once (!); 'job motivation' was not scored.

We couldn't find a significant correlation between the two methodologies; which means that students who scored high when using the 'model of Korthagen', do not automatically have a high score (or low) when using the methodology 'digital storytelling'.

In order to determine this, we used - because not all variables have a normal distribution- the statistic Spearman's rho (rho 0,438; p = 0,053).

Furthermore, we could not find a significant correlation with BALO or BAKO.

This means that students from respectively BAKO / BALO not significantly score more or less on elements of 'in-depth reflection'; this for both methodologies, cf. the 'model of Korthagen' and/or 'digital storytelling.' (Mann-Whitney test, cf. model Korthagen, resulted in U = 46, p> .05; cf. digital storytelling, resulted in U = 43, p> .05).

Finally, we note a significant correlation between the length of a 'reflection assignment' (= number of words) and the number of elements that refers to 'in-depth reflection'. Since not all variables have a normal distribution, we checked if this correlation was significant with Spearman's rho. (For "digital storytelling": rho 0,497, p <0.05; for the 'model of Korthagen':

Table 1: mean, median, mode of 'personal interpretive framework'

<table>
<thead>
<tr>
<th>N</th>
<th>Valid</th>
<th>Missing</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td>2.00</td>
<td>2.00</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>0</td>
<td>.55</td>
<td>.50</td>
<td>0</td>
</tr>
</tbody>
</table>

- Model of Korthagen, sum of 'personal interpretive framework'
- Digital storytelling, sum of 'personal interpretive framework'
rho 0.531, p <0.05). This positive significant correlation means that 'long' reflection reports are more likely to have elements that refer to 'reflection in depth'.

6. Conclusion and further investigation
This contribution focuses on a pilot study about 'digital storytelling' and 'in-depth reflection'. First, we can deduce from the results of the survey that students find reflection as an essential part of the programme of a teacher training. Further, we found that about half of the students prefers 'digital storytelling' as a methodology to reflect. The hypothesis (= 'The use of the methodology "digital storytelling" leads to a higher degree of "in-depth reflection" than when the model of Korthagen is used.') could not be confirmed from the results of this research. On the contrary, it appears that when students use the 'model of Korthagen' more elements that refer to 'in-depth reflection' are scored, than when the methodology 'digital storytelling' is used. Furthermore, it appears from a comparison between the two subcategories of 'in-depth reflection', that 'professional self' (including the various 'indicators') has a relatively higher score than 'subjective educational theory'; but when compared to the indicators separately, 'subjective educational theory' scored more. When we compare the indicators connected to 'professional self', we see that 'self-image' and 'self-esteem' has the highest score; 'job motivation' was never scored.

Finally, we find a significant correlation between 'the length of the reflection reports' and the number of elements that refer to 'reflection in depth' (this for both methods).

The results of this pilot study didn’t revealed the reasons why reflection assignments show more elements of 'in-depth reflection' when students use 'the model of Korthagen' (=compared with the methodology 'digital storytelling'). This is however - without any doubt-an important issue. When these reasons can be indicated, it probably becomes possible to formulate the most essential characteristics that could optimise the use of 'digital storytelling' in a teacher training programme. Therefore, it seems interesting for us to investigate this particular aspect in further research.

References
  A thesis presented to the academic Faculty, Georgia Institute of Technology.
  Proceedings, Onderwijs Researchdagen. Thema, lerarenopleiding en leraarsgedrag.
  Doctoraat Faculteit: Sociale wetenschappen, RU Groningen.